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THE SPHERE, SEPTEMBER 27, 1941
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THE SPHERE

Vol. CLXVI
No. 2175
WITH WHICH IS INCORPORATED THE GRAPHIC
SEPTEMBER 27 1941

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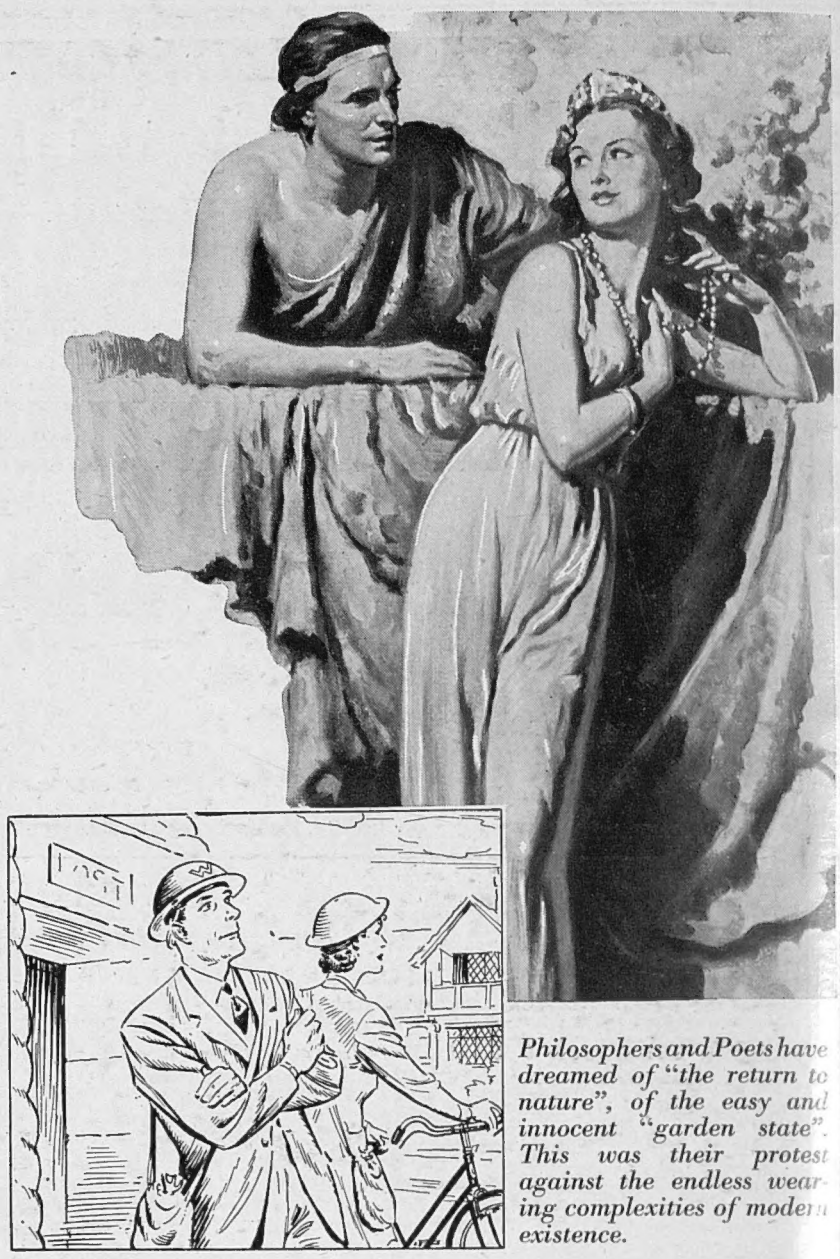

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Volume CLXVI No. 2175 The SPHERE, London, September 27, 1941

THE SPHERE
With which is incorporated "THE GRAPHIC"
The Empire's Illustrated Weekly
London, September 27, 1941

BRITAIN'S PARACHUTE TROOPS PREPARE FOR FUTURE ACTION: SOME OF THE PARATROOPS CARRYING ONE OF THEIR SPECIAL CONTAINERS TO THE AIRCRAFT IN READINESS FOR A TRAINING FLIGHT

On this and subsequent pages of this issue we publish a new series of pictures of British parachute troops. A large force of these men has now been fully trained and are ready for action. Bearing on their arm the special badge of Air Force wings surmounted by a small parachute, these volunteers have been drawn from almost every regiment in the British Army. They have been specially picked for their physical fitness and quick mental reactions; and their training has been rigorously adapted to the requirements of this newest branch of warfare. Each man wears special garments, from the boots upwards, to prevent them catching in the fuselage of the aircraft as he jumps and to facilitate his further offensive action after he has landed. The manner in which the parachute harness is worn by the paratroops is well brought out in this picture (*see also* pp. 390-91)

Postage—Inland, 2d.; Canada and Newfoundland, 1½d.; Elsewhere Abroad, 2d.

A WAR NEWSLETTER —No. 108

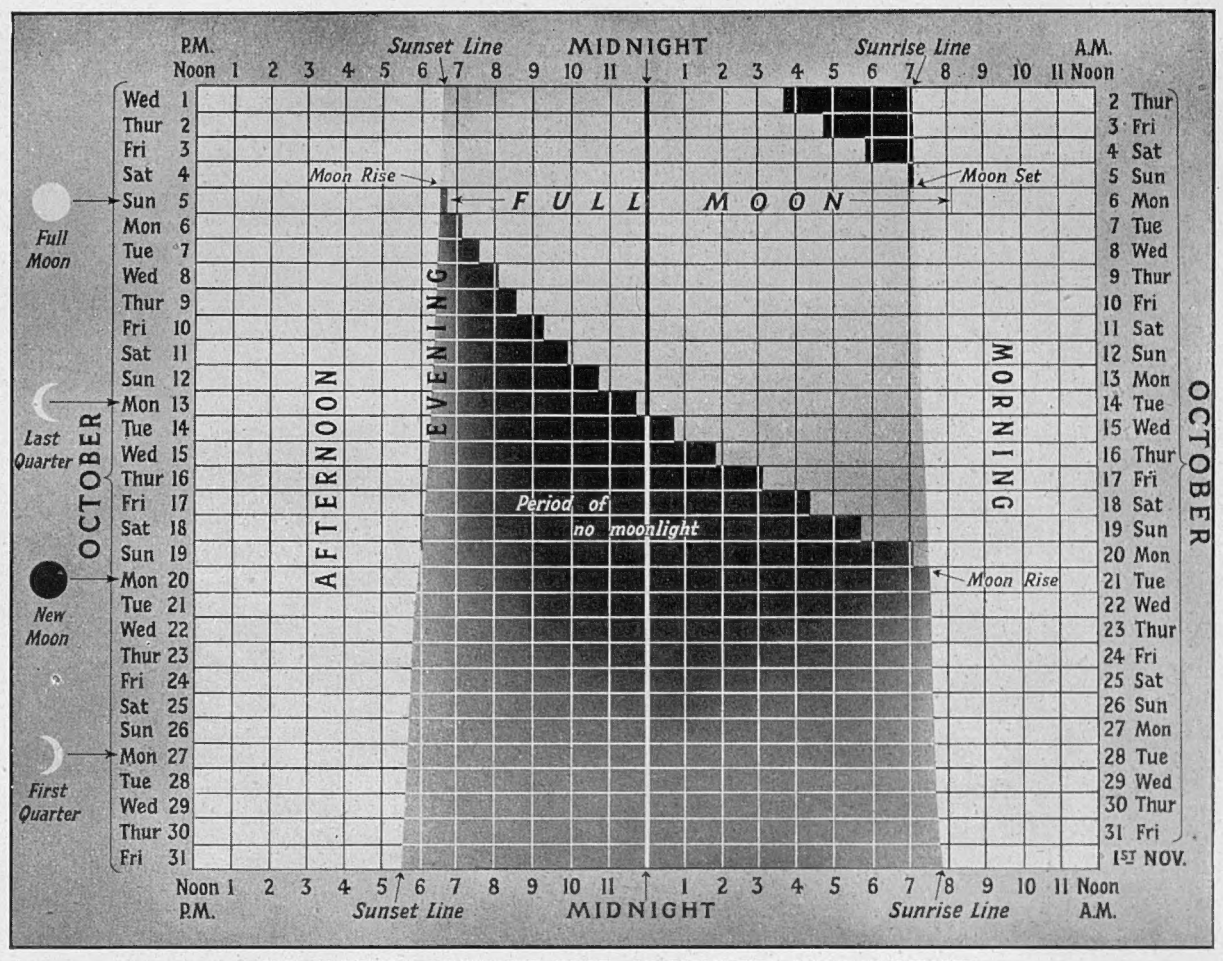
1, NEW OXFORD STREET, W.C.1.

Another Nigger-boy Gone.—Come, come! The outlook is very serious. The sun climbs slow, how slowly, and so forth . . . but eastward the land *is* brighter for the liquidation of one more dictator. The Shah of Iran has quit the field, taking some of his loot with him, but none of his reputation. Two years of war have, after all, given the dictator gangs quite a gruelling. Musso, that yellow, deflated gas-bag, is of not much account in Italy or elsewhere. Of the other fat man in tight uniform, Göring, not much is heard. Carol is getting used to his position as a tourist whom no country wants to harbour; Boris, I fancy, is packing his strong-box for all eventualities; and Antonescu finds the going is likely to deteriorate. The yellow Shah of Iran has driven dictatorship out of fashion in Persia, and the Vichy type of dictatorship is clearly neither popular nor effective in Paris. When Mrs. Manning elected to be hanged (for murder) in black satin, black satin went out of fashion in Mayfair for many years. And dictatorship, which has even stronger affinities with murder, is definitely on the down-grade. Even the great Panjandrum of dictatorship is feeling pin-pricks in the joints of his harness, and prickings in his thumbs that dictatorship is not, after all, all-weather wear. It won't stand much rain or dirty weather. It lets in the wind of criticism when skies grow darker with autumn gales. We are, after all, fighting dictatorship, so these casualties among dictators are quite as significant as the Nazi losses in Russia. We are getting on. And, since we are fighting dictatorship, let us avoid anything of the kind (in however polite, benign and civilised a form) in our own Government and those of our Allies. It was never a popular fashion in Britain, and a year hence it will be like Mrs. Manning's black satin throughout Europe also. I do confess that (apropos dictators)—

"Standing on the Persian's grave
I could not deem myself a slave."

As we are fighting, at great personal inconvenience, for freedom, let us ourselves remain free, and keep in the van of fashion. Let us value leadership, but resist dictatorship from our Ministerial giants and Ministerial minnows alike.

Russian Propaganda.—The Soviet Propaganda Director is hailed throughout an admiring world as a master of his arts and as the master of past-master Goebbels. Many people in this country would like to see our propaganda imitating the admirable and effective features of the Soviet. I do not agree with them. I do not deny that our propaganda leaves room for great improvement, but I do not think we could usefully graft on to our rugged British stem the methods of a race very different in character from our own. Propaganda is a disagreeable expedient at the best, and there are features of the Russian which are not congenial to British minds. That reading out to German women of the letters of Nazi wives to their husbands at the front, with the postscript that those husbands are "liquidated" and now occupy six foot of Russian soil. No doubt it is very telling, but let us leave that method to the Russians in their dire need and bitter hatred. Already we are imitating certain features of propaganda which we should have spurned a year ago, but which I clearly prophesied we should come to, as hate grew with intensified bitterness of waging war. You will note how B.B.C. and Press increasingly glory in the killings achieved by our night bombers and corrects the "grossly conservative" figures of such killings of civilians admitted by the Nazis. If our propaganda is dull and "conservative" still, I think it is more in tune with our national character, which even to-day rather despises blind hate and still has some recollection of what in the bad old days used to be called "playing cricket," even if (which is possible) that much-abused term carried the justifiable criticism of national hypocrisy. There is, and always will be, a certain degree of hypocrisy in good form, good manners and what is called taste.



"THE SPHERE'S" MOONLIGHT CHART—AN EARLY FULL MOON IN OCTOBER

As shown by the vagaries of the "changing moon," it should be noted that during the month of October in 1940 full moon did not occur until the 16th, whereas this year we have it on the 5th of the month. The full moon rises before seven o'clock. By the 14th the rising time has passed the midnight hour and by the 16th and 17th the dawn-light hours challenge the moon. So that on the whole there is a large amount of "no moonlight" during the month. The dark period is from the 18th to the 31st

A limited number of these charts will be supplied free of charge on application to the Publisher, "The Sphere," Commonwealth House, 1, New Oxford Street, W.C.1, but 2½d. in stamps must be enclosed with the application

All Set for the Third Winter.—Unmistakably, the nights draw out longer—and cooler. The third war winter is upon us. In what posture do we face its unknown trials and certain hardships? Firstly, with remarkable national unity under the Premier's guidance. The more we grouse, the more proven is that unity. That unity of purpose supplies the confidence which enables us to enjoy freedom of speech. Let no Minister be so misguided as to chastise us for our frank criticism. It is a great asset and a great security. Thus, we agree to differ as to the chances of invasion this autumn; as to the degree of taste shown in published or broadcast glorification of night-bombing raids and their destructive effect on civilian life and property; on the warnings and stimulants alternately served out by Ministers; on instances of waste and redundant effort and (inevitable) muddles which still come to light; on propaganda and peace aims. But we are solid and united at heart. We take pride in ourselves and in our past record, and have confidence in our Government and in our future. We believe that our neighbours are doing their bit (on the whole) and our statesmen their best; and we ourselves are resolved not to relax our own small efforts. We know the way is long, dark and arduous, even if we allow ourselves to dream that the age of miracles may not be over. We formulate no precise miracle, but . . . we don't discount that dim possibility. In nothing are we more unanimous than in the belief or certainty that we shall suffer mass attack from the air this winter. The score (to be repaid) is mounting up. The Nazis are not the men to forget old scores, and the most imbecile feature of night-bombing is that it inevitably becomes a vicious circle of blind vengeance. We shall suffer, and we shall endure. We are probably not light-headed if we comfort ourselves with the belief that the assault may not prove so constantly heavy as last year's. The Nazis have other engagements. They have lost several thousands of their best bombers. We have increased our defences on the ground and in the air. The air initiative is more definitely ours. Our fire-fighting services and our shelters are all improved. Other jolts and jars are sure to come, also. Heavier shipping losses, new assaults and perhaps reverses in the Mediterranean and Near East, and the possibility, never to be scouted, of invasion. Not to mention some privation in food and fuel and the risks of disease. It will be a grim winter. But we are better prepared to face it than we were a year ago, and it cannot possibly be so bad as our gloomiest forecasts made only six months ago. No; not possibly. No. Not by miles.

The Paper War.—It is now one-and-a-half years since the Home Guard was established, and some sort of agreement among the many authorities which control its training as to its prime function is getting nearer. The original "guerilla" idea is coming into fashion again. They have tried to make us guardsmen, and garrison troops, and shock troops, and an expeditionary force, and so on. Now, once again, they have come round to the idea that, with the time and personnel at our disposal, our best chance of gaining efficiency lies in plugging on hard at rifle practice and bombing practice, at getting to know our own lanes and byways and learning the quickest way to reach any given point to harass small groups of invaders. I could have told them that! We cannot resist heavy tanks nor garrison villages indefinitely nor travel across England beside regular units. But, though the "guerilla" is for the moment again in fashion in Whitehall, the paper war has not died down. It has increased, is increasing and ought to be diminished. From all over the country I hear of the burden of "office hours" for battalion and company commanders, H.G. These vary from 6 to 4 hours daily. A company commander's essential files now number about 20. He must employ a full-time secretary and he himself be "full time" if he is to cope with his office work and get about his essential work among his men. And of the "paper" which he is forced to disseminate among his platoon commanders, four-fifths is sheer waste of printing ink, paper and the time of educated men. I received (e.g.) twenty elaborate prints of enemy tanks, for recognition purposes, and as many or more of hostile aircraft, for dissemination among the rustics of a village platoon. Anyone—be he Zone Commander or training authority—if he had a scintilla of imagination, would be able to paint a picture of what happens to these elaborate publications in the dark barn where the cowmen occasionally assemble for training, and of what practical value this snowstorm of paper is to such rustic personnel, already worn out with harvest overtime; and having painted the picture, he would rigorously ration the paper storm. But does he? He does not. The vicious circle widens, and the use of the company commander is drowned in the flood of paper distribution. It is sheer tragedy.

German Finance—Switzerland.—A correspondent writes to me: "In a recent number of THE SPHERE I read an interesting article on Switzerland: and a financial point so appealed to me as to hope that you may comment on it for more general attention. The Germans import French francs into Switzerland in large quantities, mostly in notes of 5,000 francs. For these the Swiss have to give 500 Swiss francs. So I look up in the paper to see if there is a current quotation for Swiss francs, and find them worth 17.40 to the £1! With the result that the Germans can apparently obtain £28—or the equivalent in dollars—for a worthless piece of French paper. It sounds monstrous." Someone with more time and brain than I have may care to verify and confirm my very dependable correspondent's facts, and agree or disagree with his verdict of *monstrous*. If his facts are correct, he does not overstate his condemnation of German finance. But one expects pigeons to suffer some diminution of feathers when a hawk is on the warpath.

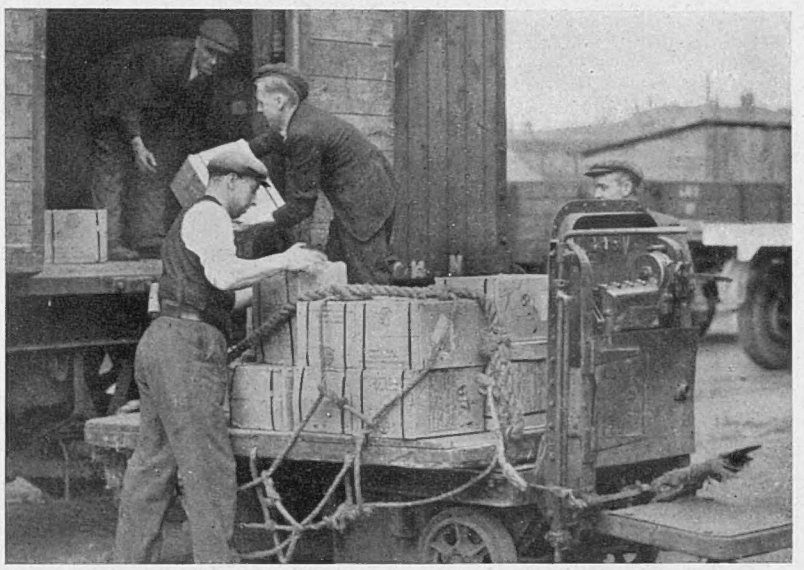
THE OLD STAGER

FURTHER SUPPLIES FOR BRITAIN: An American-built bomber being landed at a British port. Some of these planes have actually been flown by the R.A.F. three days after being unloaded in this country

LEASE-LEND MATERIAL Arrives from the U.S.

Resembling rolled-up snakes, these are TANK TRACKS from CHICAGO: with other mechanical parts they are being unloaded upon arrival in Britain

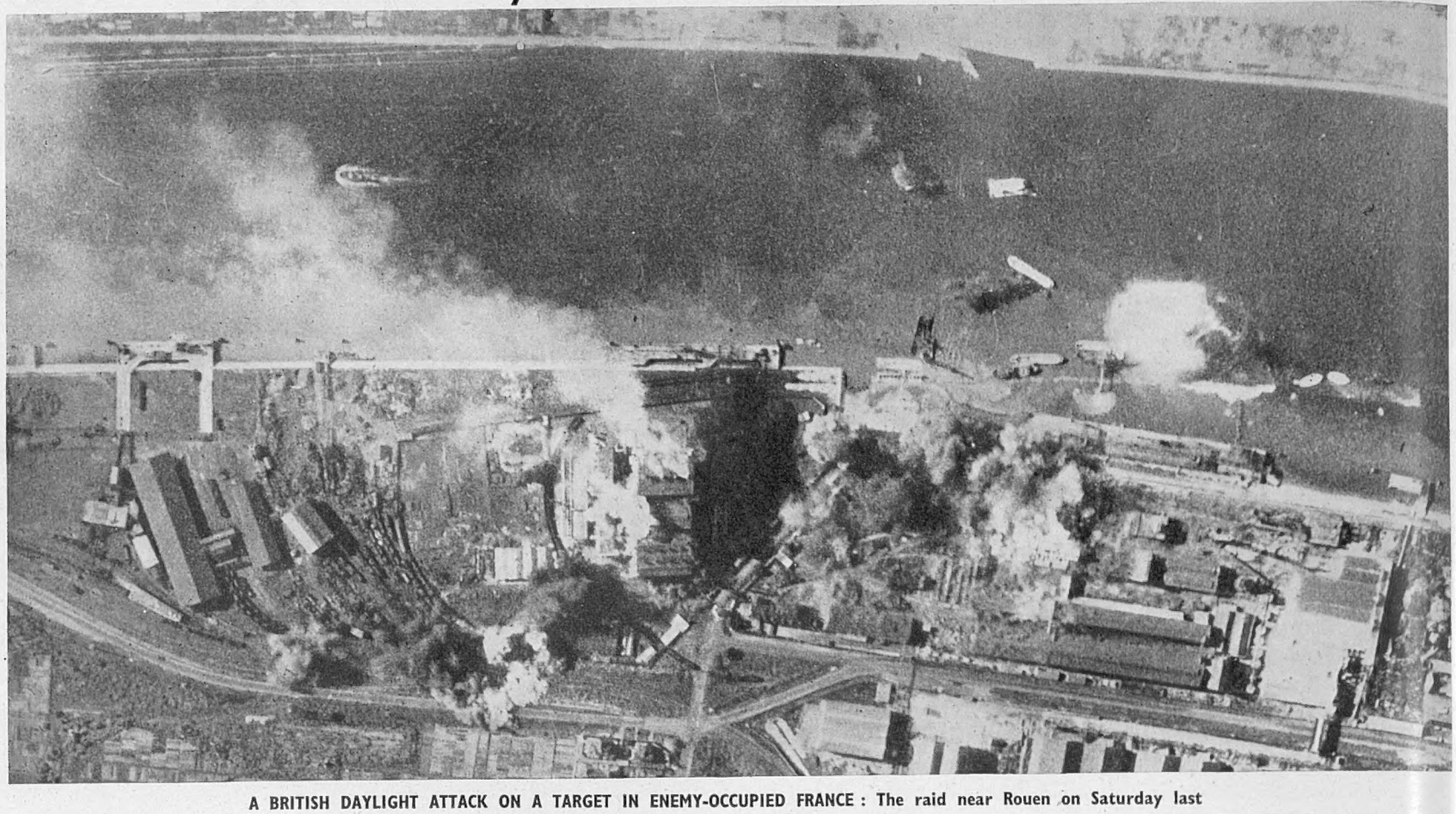
Cargoes consisting of everything, "from night-fighters made in California to peanuts grown in Georgia," have just been brought to this country by a very large convoy of ships from America. These were escorted partly by U.S. vessels. As soon as the convoy arrived with this very welcome "Lease-Lend" help, the docks became a hive of industry, for a quick "turn round" is essential these days to counteract the shortage of shipping



ALL-IMPORTANT COOKING FATS FROM THE U.S. being loaded from a truck into a waiting railway train soon after the cases had been landed from a recent big convoy

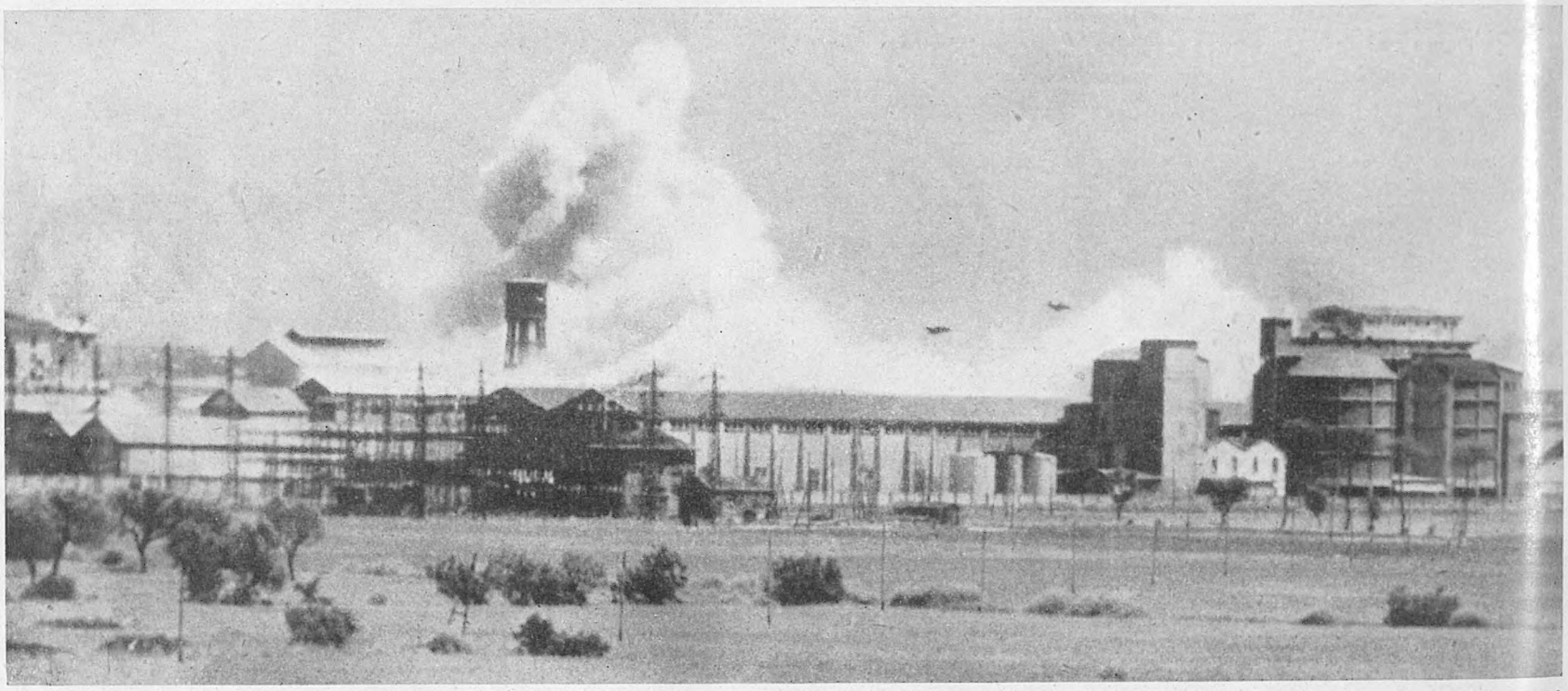
BUILDING NEW YORK WITH BOMB DEBRIS FROM LONDON! Bricks and other bomb-damaged materials, brought from Great Britain as ballast in merchantmen, are now being utilised in New York as "fill-in" material for the East River Drive, between 23rd and 34th Streets, now under construction

NON-STOP OFFENSIVE by the R.A.F.—And the MEN WHO are DOING IT

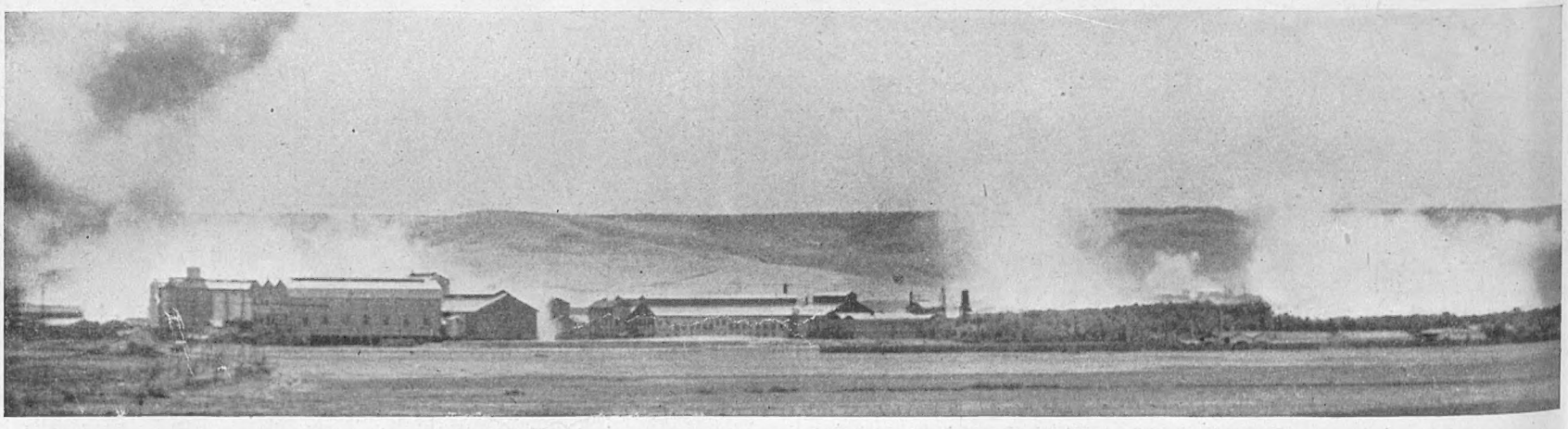


A BRITISH DAYLIGHT ATTACK ON A TARGET IN ENEMY-OCCUPIED FRANCE : The raid near Rouen on Saturday last

This picture was taken during an attack by Blenheim aircraft of the R.A.F. Bomber Command on a power-station and factories at Grand Quevilly, near Rouen, on the River Seine, on Saturday, September 20. Bombs are here seen bursting on the power-station, workshops, a chemical factory and railway sidings, as well as amongst shipping near the quay. The attack was only one of a number of very heavy blows aimed by the R.A.F. on Germany's war machine

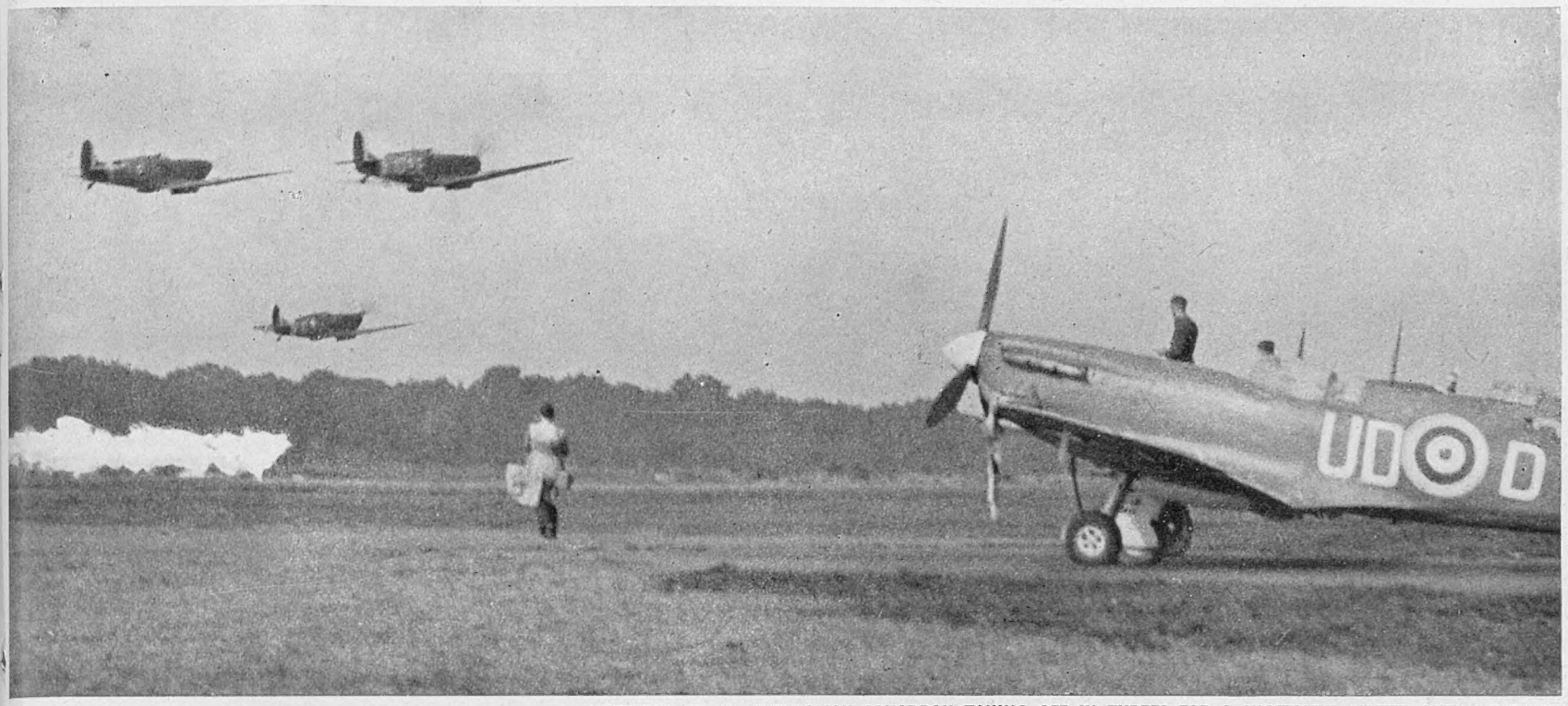


IN THE MEDITERRANEAN : A DAYLIGHT ATTACK ON A MUNITIONS FACTORY AT COTRONE, IN SOUTHERN ITALY. The attack is here seen in progress, with two British aircraft coming in very low over the target



AS THE BRITISH AIRCRAFT DEPARTED FROM COTRONE : Smoke rolls over the factory from the fiercely-burning fires

Whilst the R.A.F. Bomber Command are constantly attacking enemy munitions factories in the occupied territories and in Germany, aircraft of the R.A.F. Mediterranean Command are also raiding similar establishments in Italy. The two pictures above show a raid on a factory at Cotrone, 90 miles south of Taranto, in Southern Italy. The first picture shows the attack actually in progress, whilst the lower picture shows the scene as the British aircraft left



SPITFIRES OF AN AUSTRALIAN SQUADRON TAKING OFF IN THREES FOR A SUCCESSFUL SWEEP OVER NORTHERN FRANCE. Six enemy aircraft were shot down for certain as a result of this particular raid

TWO OF THE AUSTRALIAN PILOTS WHO TOOK PART reporting on the encounter. The pilot on the left claimed two enemy aircraft, plus one damaged; and the other shot down another German

BEFORE THE RAID: A group of the fighter pilots ready to take off at the opening of the afternoon's operations

THE FLIGHT-LIEUTENANT IN HIS SPITFIRE JUST BEFORE TAKING OFF

These pictures, taken at a Fighter Command station a few days ago, show actual scenes just before and after an Australian squadron had participated in the greatest daylight operations over enemy-occupied territory since the war began. Led by a Flight-Lieutenant—Brendan Finucane, who has many enemy aircraft to his credit, and who has already been awarded the D.F.C. and Bar—the squadron claimed a further six Nazis as definitely destroyed, with another two "possibles"

On left—ON THEIR RETURN: A group of fighter pilots comparing notes. The Flight-Lieutenant on the left destroyed three of the enemy

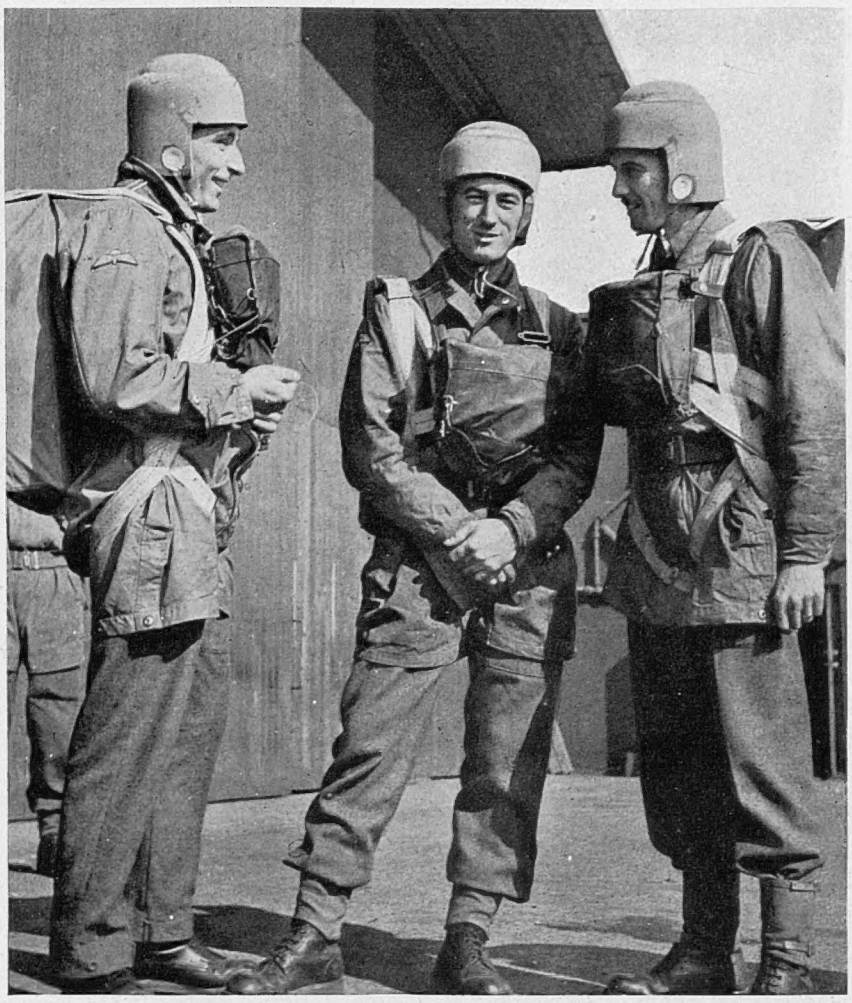
BRITISH PARATROOPS ARE NOW FULLY TRAINED FOR WAR

PARATROOPS FULLY EQUIPPED FOR EXERCISES : Short overalls are worn over the soldier's uniform ; over these goes his parachute pack. The boots are heavily soled with rubber, and the curious helmet is of sorbo rubber to prevent injury to the head. Some men wear the short infantry leggings, others prefer to jump without them

TYPES OF THE MEN WHO NOW FORM OUR CORPS OF PARACHUTISTS: On the ground is one of the special parachutes used by the paratroops

It has not taken long for Britain to prepare and train her corps of parachute troops. A large force of these men is now ready for action and anxious to demonstrate that they, too, can wage this most modern method of warfare. The pictures reproduced here were all taken during exercises recently carried out in this country : they show, in particular, the equipment with which our paratroops have been supplied and the manner in which this is worn. In the event of land operations against the enemy in Europe, there is every reason to believe that British paratroops will give a very good account of themselves !

THE SPECIALLY CONSTRUCTED HELMETS WORN BY THE PARATROOPS WHEN MAKING A DESCENT : These are securely fastened under the chin by a stout cord



FULLY ACCOUTRED FOR A TRAINING FLIGHT : Three sturdy members of Britain's corps of parachutists ready to take off during an exercise

CARRYING ONE OF THE SPECIAL PARACHUTES TO THE AIRCRAFT : This picture also shows the special short overalls worn over the paratroops' uniform

RESTING AFTER AN EXERCISE : A picture which also indicates some of the arms employed by the parachutists

OFFICERS OF THE PARACHUTE TROOPS WITH AN R.A.F. WING COMMANDER : Officers wear the same badge on the shoulder as the men

ENTERING THE AIRCRAFT FOR A REHEARSAL FLIGHT : Later, in the aircraft, the static line will be fixed to the parachutes, so that the latter may open quickly

GUERILLA WARFARE IN RUSSIA

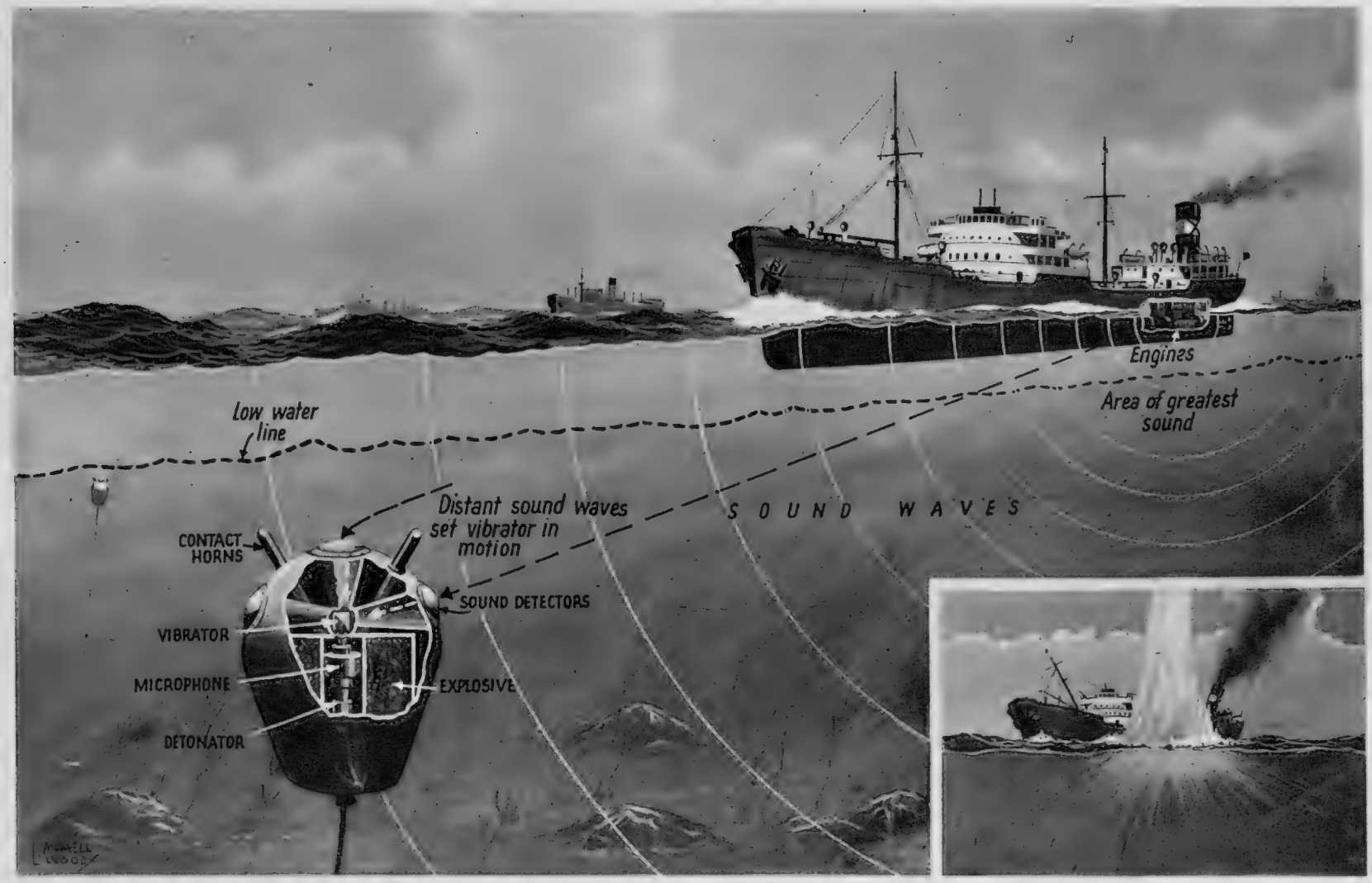
THE INDOMITABLE WOMENFOLK OF SOVIET RUSSIA : This picture comes from the village of "N," which recently figured in the Soviet's war bulletins. These girls, all collective farmers, have joined the Red guerilla forces

DEATH TO THE INVADERS! Guerillas take the oath : The Soviet guerilla troops seen above are reading out a solemn pledge to fight to the very end. All are armed, and it will be noticed that women are included amongst them

CAVALRY COME INTO ACTION ON THE SOUTHERN FRONT : The cavalry of the Red Army have, at many points, demoralised German infantry units by charging between them and their protecting tanks. Even when they have been cut off from their formations, the Red Cavalry have still continued to operate in the enemy's rear as guerilla bands

THE TYPE OF COUNTRY IN WHICH THE GUERILLAS LURK : Lorries of a Nazi transport and supply column pass through a burning forest, which has been deliberately fired by the Russians. It is in undergrowth like this that the Red guerillas collect to ambush the enemy and cut them up

THE SILENT RUSSIAN GUERILLAS MOVE OFF TO THE ATTACK AIDED BY THEIR WOMENFOLK : These men are heading out in the evening for a night attack on the enemy's rear. Again, it will be noted that women are amongst them. This method of warfare, new to the Germans (who have hitherto been used to dealing with a terrified and bewildered peasantry in the countries they have overrun), has brought terror into the hearts of the enemy, who never know what portion of their vital lines of communication is next to be attacked



HOW THE NEW GERMAN MINE IS CONSTRUCTED AND HOW IT OPERATES BY SOUND—*Drawing by L. Ashwell Wood*

THE ACOUSTIC MINE

Which Germany is Now Using Against Our Shipping Around Britain

In his last review of the war in the House of Commons, the Prime Minister disclosed for the first time that the Nazis are using a new weapon around Britain in their war upon our shipping—the Acoustic Mine. "The ordinarily moored mine laid by night in the approaches to our harbours," he said, "was succeeded before the end of 1939 by the magnetic mine, with all its mysterious terrors, and is now waged continually by the acoustic mine as well as the magnetic." This diagrammatic drawing shows how the sound mine is constructed and how it operates. The sound-waves from a ship's engines are picked up by sound-detectors fitted in the mine: these waves act on a vibrating reed. The vibrations produce electrical impulses, and when these are sufficiently powerful, due to the nearness of the ship, they detonate the explosive. The Prime Minister, in his speech, went on to say that 20,000 men and 1,000 ships are toiling ceaselessly to clear the approaches to the ports every morning of the "deadly deposits of the night"

At NIGHT in MID-OCEAN

A Catalina Keeps Guard Over a Hudson's Submarine Catch

FOR the first time in this war a land aeroplane has forced a German submarine to surrender outright. This feat was performed by a Lockheed Hudson bomber of the R.A.F. Coastal Command, and has been fully described in the Press and over the radio. What is not so well known, however, is how the submarine was guarded all night by a Catalina flying-boat, to whose care the Hudson turned over their prize. The relief Catalina arrived in the early afternoon. When the Hudson crew saw the Catalina approaching, they dived twice more over "their" U-boat to have a last look at it.

Then it was the Catalina's turn to circle endlessly, the blister guns trained on the U-boat's crew. They kept it up for eight hours without having to fire a single shot. Surface craft were steaming towards the spot as quickly as possible, but they were a long way off yet. The question was, could they get there before nightfall? The hours dragged by in those interminable circles. Some of the U-boat's crew now and then walked out on to the deck from the conning-tower in spite of the waves—they were all drenched as it was, so what did the waves matter? The Catalina took the precaution of frequent dives over the U-boat to ensure that the hatch was still closed.

The weather was growing worse, daylight was fading. There was every chance of losing the U-boat during the night, and the Catalina crew were growing desperate. But at the last moment they sighted one of his Majesty's ships, which steamed up, and started to signal orders to the U-boat crew. Then came darkness: the Catalina lost touch, and had to go home. Long before daylight next day, however, another Coastal Command Catalina was in the area, continuing the vigil. By now a gale was blowing. The night was jet black, and rainstorms were lashing everywhere.

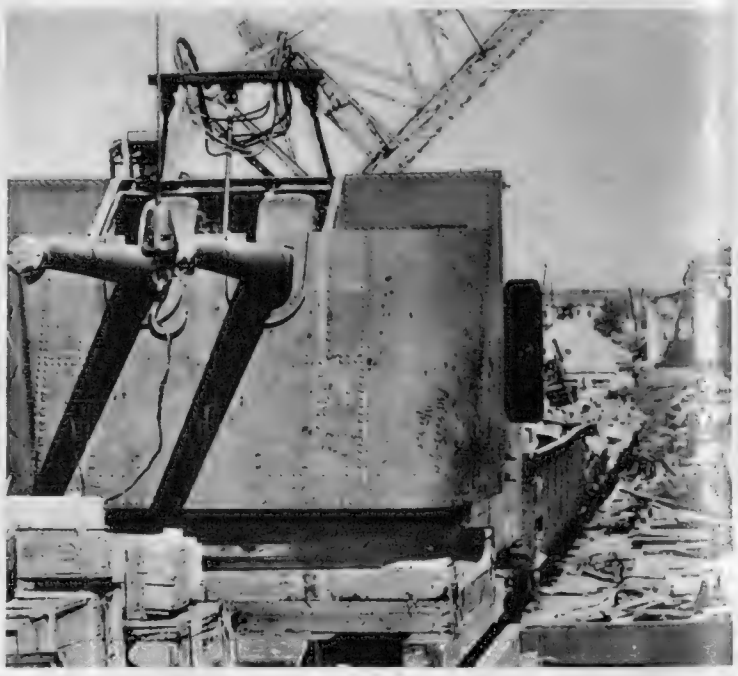
Once in the darkness they picked up a glow of light from the submarine, but so fierce was the gale that, as they circled, they were blown off their course and lost her again. But soon they saw her reflected in the dim light through the storm with the white foam of the waves breaking across her bows. Throughout the remaining hours of darkness the Catalina continued to circle. At last light began to break, and the crew could just see the thin outline of the submarine. As the light strengthened they could make out one ship lying nearby, and soon they saw other ships approaching. From the time when the first ship arrived, the U-boat was covered from the air by Coastal Command aircraft for practically the next forty hours.

Drawing by William McDowell

AFTER A HUDSON AIRCRAFT HAD FORCED THE SURRENDER OF A GERMAN U-BOAT, a Catalina flying-boat arrived to keep watch on the prize throughout the hours of darkness: "Once in the darkness, they picked up a glow of light from the submarine, but so fierce was the gale that, as they circled, they were blown off their course and lost her again" (See *accompanying notes*)

THE GERMAN ADVANCES IN THE DNIEPER REGION: How these have been carried out across the river country—*Drawing by E. Walker*

The thrust into the Ukraine has been rendered possible owing to the attention paid by the German Army to the technique of river-crossing during past years. In their manœuvres this has been rehearsed time and time again, until great rapidity of movement was achieved. The Germans have made great use of small inflatable rubber boats, as well as heavier devices, for conveying troops rapidly across rivers. But it is only fair to our Allies to point out that, more than once, Russian speedboats on the bigger rivers have caught the enemy during the progress of these operations and inflicted a very heavy toll on them



Above and below—**TWO VIEWS OF THE SOVIET SHIPBUILDING YARDS AT VERNO LENINSK:** This town was reported to have been captured by the Germans on August 17. It is a Soviet shipbuilding centre in the Southern Ukraine, and was wrecked by the Russians before its capture. Above, in the foreground, is a finished gun-turret for a Soviet battleship ready for mounting; below are two partially-completed submarines lying in their cradles in the shipyards: these were intended for eventual service in the Soviet's Navy

THE GERMAN SALIENT UP TO, AND ACROSS, THE DNIEPER, where continued pressure is being maintained to the rear of Kiev and towards the Crimea and Azov

During the second and third weeks of September German pressure continued to be exerted within the big salient formed by the course of the Dnieper River from Cherkasy through Dnepropetrovsk to Kherson, near the river's entrance into the Black Sea. The enemy advance was slow and appeared to be held on long stretches of the left bank of the river, but at Kremenchug a retirement was announced by the Russians, which indicated that the line of the river defence had been pushed back at this point. A similar movement was claimed by the enemy at a point south of Zaporozhe, the exact position not being indicated. The enemy's desires doubtless envisaged the cutting of the main railway line running south from Kharkov through Zaporozhe to the Crimea, but this object had not been achieved at the middle of the month. A break-through at the point indicated on the map would endanger the whole Crimean area, but the Russian resistance again proved to be very tough, both here and in front of Odessa

THE CREATOR OF GERMANY'S POWERFUL TANK WEAPON—Colonel-General Heinz Guderian

On left—This is the man to whom the enemy owes a good deal of his success in France and other countries. Colonel-General Heinz Guderian is the Commander of the Nazi Panzer Divisions, which he has organised and equipped to a very high pitch of efficiency—as evidenced in three German campaigns. He has been rewarded with the Knight's Cross of the Iron Cross for his services. Recently, it was claimed by the Russians that Guderian had been wounded during a surprise assault by them on a tank division's headquarters in the Central Sector

The CAMPAIGN in RUSSIA

ONE TYPE OF RUSSIAN ARMOURED TRAIN : Before the withdrawing Russians allowed it to fall into enemy hands, they placed a bomb in the tender of this armoured train and put it out of action

SOVIET ARMOURED TRAIN NEAR LENINGRAD moving up to a new position to help in the defence of the northern capital, where these heavily-armoured units have proved very successful

AT THE EXTREME NORTH : The Kola Peninsula and the region around Murmansk and Petsamo

The northernmost region of the great fighting belt of the Russo-German campaign awoke to renewed activity during the middle of September. The enemy was reported to be developing an attack on Murmansk from the west, but the pressure here was also resisted effectively. On the 16th of the month it was reported from the Russian side that a successful attack had been made against transport vessels entering Petsamo Bay. The sinking was accomplished by two Russian motor-craft. "At the entrance to the bay they waited for the German transport. The Fascist cutters were allowed to enter the bay unhindered ; when the transport and other convoy vessel appeared, the Soviet motor torpedo-boats made their way to within five or six hundred yards and torpedoed them, sinking both." The White Sea area has doubtless been very much in the minds of the Russian naval command, for it is by this route that the smaller vessels of the Baltic Fleet could reach northern waters, if they were forced to retire from Kronstadt by way of the Stalin Canal. Here again this threat was met by stubborn resistance in the Baltic

ARMOURED TRAINS HAVE BEEN EMPLOYED BY THE RUSSIANS AROUND LENINGRAD AND ON SEVERAL OTHER FRONTS—*Drawing by W. G. Whitaker*

Another evidence of Russia's preparedness for war is to be found in her use of armoured trains. These have been employed in several areas, and with varying success. A great deal naturally depends on the local railway system ; an armoured train carrying half-a-dozen 4-in. or 6-in. guns can prove a most heartening addition to local artillery strength if the layout of the railway system permits of the train being brought into useful positions where the attack can be delivered and also a door kept open for rapid retreat. The radiating east and west lines running from Orel towards Gomel and Smolensk, from Kursk and Kharkov towards Kiev, would provide useful routes of attack. And, in the Leningrad area, armoured trains have already proved of the very greatest value. The Russian armoured trains are of several types ; in some cases the armoured locomotive is placed in the centre of the unit, permitting movement forwards or backwards as required. Other units have been hauled by specially armoured tractors. With the heavier units, the plating is thick and runs down well over the wheels

THE SHAH ABDICATES

As a Result of his People's Protests, and is Followed by his Eldest Son

THE EX-SHAH OF PERSIA, who for years has oppressed his people and exploited them until his own coffers were bursting with his gains. This picture was taken in Teheran, when the ex-ruler was present at the opening of the Spring Parade of his Army. Riza Shah Pahlevi is seen on the Imperial Pavilion on the race-course—a very grandiose pavilion, constructed of solid stone!

THE NEW SHAH—Shahpur Mohammed Riza, the former Crown Prince, who now succeeds his father on the Peacock Throne

THE BEAUTIFUL WIFE OF THE NEW SHAH: Formerly the Princess Fawzia. She is the eldest sister of King Farouk of Egypt, and was married to the Crown Prince in 1939. The latter is now twenty-one years of age; he was educated in Switzerland. It is probable that the new Shah will have to give evidence of a more friendly attitude than that of his father towards Russia and Britain before his succession is fully established in Persia

THE MAJLIS, OR PARLIAMENT, BUILDING IN TEHERAN: The Majlis is the National Assembly of Iran; it was established in 1906, when the present Constitution of the country was drawn up. Each term of the Majlis lasts for two years. In actual practice Parliament enjoyed little authority in recent years, the whole of the governmental power being in the hands of the ex-Shah

WHERE THE IRAN CABINET USED TO MEET IN TEHERAN: This is a wing of the Royal Palace—convenient to the ex-Shah, who, it is reported, ruled his Ministers with a rod of iron—and, occasionally, a horse-whip! In accordance with Riza Khan's grandiose ideas, this palace was one of the first air-conditioned buildings in the world, the tower at the left serving as the intake for the fresh air

THE BRITISH LEGATION IN TEHERAN, which possesses a large swimming-pool to help in resisting the terrific heat experienced in Persia during the summer months. Our Minister in Persia is Sir Reader Bullard, whose name has been permanently in the news during the past few weeks

GENERAL WAVELL MEETS A RUSSIAN MILITARY LEADER: During the operations in Iran, there was a meeting at Bagdad between General Wavell, British C.-in-C. in India, and Colonel Popov, of the Russian Military Mission (in centre) On the right is the Russian interpreter

The abdication of the Shah of Persia (as Mr. Winston Churchill obstinately calls the country which is now generally referred to as Iran) came as the culmination of a series of covertly hostile acts against Britain and Russia. It was also demanded by his people who, during recent years, have groaned under his tyrannical methods and his greed for gain. Riza Khan forced his way to the throne in 1926, and since then has systematically exploited his country: he has now left the capital of Teheran for Isfahan, 220 miles away in Central Persia, having nominated his eldest son, the Crown Prince, as his successor. Before this succession is confirmed, however, the new Shah will have to provide evidence that his people desire him on the vacant throne, and that he will display a less pro-German attitude than his deposed predecessor

SCOTLAND WANTS CHANGES WHEN PEACE RETURNS

A Visitor from the South Describes the Results of a Tour Through the Highlands and the Cities of the North

By FERDINAND TUOHY

A PROMINENT Dominions figure who made much the same Scottish tour as myself—ten days in the cities and the Highlands, with visits to the coast—was surprised by the degree of complacency he encountered. "The people up here don't know there 's a war on," he had been greeted on arrival, and he grew to appreciate that the familiar tag "was not just a piece of unmeaning facetiousness."

There are several things a visitor from the South should allow for, before presuming to assess Scotland's wartime spirit. He comes to a country which for sixteen months has stood to the invasion alert without anything very dramatic happening except the bombing of Clydeside, and Hess. In the long run a comforting assurance is bound to be generated, and this is added to by the ubiquity of defence forces. Due allowance has to be made, too, for the natural calm of a depopulated country whose people, of strong local awareness, are not given to expanding before strangers over events in the world outside. In addition to the paucity of raids and their attendant phenomena, Scotland enjoys a more plentiful food supply. In fact, it has more cause to worry over its drink supply.

Another thing which may mislead the casual observer is the apparent remoteness from the war of some topical subjects of the day. Whether games shall be played on Sunday, whether Edinburgh shall in the dim future have a night club, whether spies arrested in Scotland shall be taken to London, a Highlands power scheme, which wasn't to have functioned until after the war, and drink dominated the correspondence columns. Yet the newspapers follow much the same line as London's, and it is not their fault if Scottish people show a certain detachment or too much tendency to picture Hitler's goose as already cooked. I tried to correct the latter conception, notably in Perthshire, where my parallel discoursing with Poles in German and French induced the firm conviction that I was a spy. To which I replied: "Why, then, doesn't someone ask to see my identity card? I 've been here two days. What 's the use in having a card, especially a green one with charming picture?" Seriously, there is sloth in this regard, in view of the lure Scotland has for spies, and I commend a tightening to the Regional Commissioner, the Earl of Rosebery.

The Scots are a very small race numerically, considering the way they emerge all round the universe, and my reading is that in few British latitudes can the war have entered so relatively high a percentage of homes consequent on the absence of menfolk; and that if complacency is more discernible, not least in the Merchant Marine, than south of the Border, its workings do not prevent the Scots from biting well and truly into the war.

How much less can there ever have existed any chance of the Scots growing prematurely war-weary to the extent of their considering a break with England! Yet we know that the Nazis held such hope and acted accordingly.

The Scottish Nationalist Movement is by no means in retreat. While I was in Edinburgh, a lecture was given, telling how the English were the first to practise fifth-column methods by breaking down the Scottish will from within. The wearing of the kilt with civilian clothes is said to be often a sign of the Nationalist. Yet it may well turn out that this rather anti-English movement will be merged by future circumstance in a much wider and less prejudiced Scottish demand to manage Scotland's own affairs. The Nationalists say, "We want to be left alone." Up to a point, I imagine the bulk of Scotsmen are in agreement. They would qualify with, "*More alone.*"

We shall hear of a plan aiming at the establishment of an executive authority in Edinburgh which would have legislative and administrative power to deal with all matters of solely Scottish import, and with the Scottish aspects of industrial and social legislation. Under this scheme, housing and education would be nationally directed, and public-utility services would pass under regional authority. No doubt Mr. Tom Johnston's Council of Four ex-Secretaries for Scotland, who are to concentrate on Scottish post-war reconstruction, will face up to the qualified Home Rule demands that are to be formulated. Scotsmen feel that their country has in some vital respects been allowed to run to seed under the existing system, and no matter whose fault it is, they wish to fasten on to the post-war period to cure matters. Particularly must the Highlands be saved before it is too late.

"It is obvious that the Highlands must be helped to a fuller and more active life in one way or another if they are not to be deserted by a large part of their remaining population. Many Highland counties are virtually separated from the rest of Scotland. Some areas are benefiting fleetingly from wartime measures, but in general the process of decay has been expedited. Nor can æsthetic arguments be permitted to prevail when it comes to providing the Highlands with new means of economic life. Opposition to power-plant schemes because they alter the beauty of nature will merely hasten the deplorable process which is turning half of Scotland into a desert."

Perhaps second only to the Highlands' plight is Glasgow's hunger for new housing. Did not another bomb drop in the region, the Empire's second city would still need a minimum of thousands of new houses in order to house the existing population in tolerable conditions. Sir Patrick Dollan, Glasgow's retiring Lord-Provost who won national prominence by his Hess observations, is likely to be heard from in future Scottish affairs. He is called "the Scotch Herbert Morrison," and if a flair for gaining publicity is any comparison, then the link is there. But Sir Patrick will have his work cut out to head Tom Johnston, who is spoken of as the most active and promising Secretary Scotland has had in a long while. He reminds me of poor Herriot, who used to sleep four nights a week in the Paris-Lyons express. Johnston does almost as much commuting between London and Edinburgh.

Scottish stamina has so far weathered war strain, the black-out, food difficulties and an exceptionally severe winter. As sterner trials may well lie ahead, it is good to know that measures are contemplated to plough a further 200,000 acres in addition to the 420,000 already under cultivation (many golf links may have to go temporarily, despite their cost of creation), and that Civil Defence rehearsals are to be extended in order to compensate for Scotland's benign and wide immunity so far.

Touching food, Mr. Maxton is, alas, pawing the air in suggesting that the salmon and trout population should be increased and made available for ordinary Scottish folk. They asked 6s. 6d. a pound for salmon close to Loch Tay. And I had a Scot speaking for me, too! That it has been a bad fishing-and-game year adds point to Maxton's case. However, we are to get more venison from Scotland, and why people jib at this ex-royal steak I can't imagine. It should be served as in Berlin, where it was one of the few good dishes.

I went alongside the Clyde towards Dunoon and then across to Lomond. The spectacle of factories, yards and shipping of all kinds was a revelation. Here, one felt, was one end of the Battle of the Atlantic, and I stayed with a friend whose daily job it is to fit a determining gadget in that conflict. The Glasgow region has to be considered apart. Nearly 120,000 have been evacuated from Clydeside and very few from anywhere else. Scotland's evacuees won't stay put any more than ours will. Notably, the children return to the "blitzed" areas and only about 40,000 have stayed away. Crazy. Also costly.

If Scotland shows some outward slackness foreign to England, one reason is that it is self-condemned to a quite unnecessary degree of gloom and standing around, particularly at week-ends. The hand of the kirk lies heavier than ever, and when wedded to wartime restrictions, a formidable gloom is generated. The national newspapers print letters forcefully rejecting "the dictatorship of ministers of religion, which is alien to the freedom we are supposed to be fighting for," but I hae me doots whether any inroads will result.

Wartime Scotland is closed enough on weekdays. My experience was: Thursday, half-closed; Saturday, nearly half-closed; Sunday, hermetically sealed; other days, 10 a.m. to 1 p.m. and 2 p.m. to 5 p.m. Put that aggregate of weekly closing into a crowded spot like Glasgow and consider what slender facilities exist for entertainment and recreation. The cinemas and cafés, wholly inadequate to meet the wartime rush, are packed to suffocation. Sunday is the apotheosis of personal liberty. Unless you want to pray, everything is closed. A handful of cricket matches and cinemas have been permitted for a few hours, but only because they yield heavily to charity—and the ministers are even here up in arms. No one can get a drink unless through some complicated hotel-wangling inaccessible to lesser incomes.

It used to be popular to go into the country on Sunday: driving to some favourite inn, modest family outings. Even if petrol were saved, the cheering cup is now only served with a full meal, which modest families cannot afford. So people don't circulate any more, but just remain kicking round the streets—and I never saw such boredom as on Service faces, not least upon Polish ones.

One effect of the week-end clamp-down on stimulant which is usually served under degrading conditions which might have been purposely retained in order to stigmatise stimulant as being exclusively foul, is more public drunkenness than I 've seen in this war.

Edinburgh is just as closed as Glasgow, and it decided to have a Bank Holiday, in addition, on September 15. It is huge fun trying to find somewhere to poke in and get some food, *any food*, on the Sabbath, on the morning of which day I and several other travellers walked round and round in search of a cup of tea before finding one at Waverley Station, but only biscuits with it.

None the less, how one is always glad to see Edinburgh, our only survival to compare with the best the Continent can show. And I argued that the girls along Princes Street were the best-looking I had seen on my tour. What a parade these times! Twenty uniforms, male and female, British and foreign, from the Army, the air, the sea. One day a two-mile Forces recruiting march held up the works. Most thrilling. But why is it necessary to stimulate recruiting in a Britain drawing its armed forces by conscription?

The bread and bakery displays in Edinburgh are a delight, and you can rejoice in them on the way up to mingle with tea-room society at Crawford's and Mackie's. The place to step out is the Guise, at the Caledonian, though there 's not much stepping possible in the tiny bar where a youth of seventeen tries valiantly to slake thirsts driving in from the North Sea and Coastal Command, and from the latest invasion exercises on the East Coast. A memorable vignette of Britain in 1941 is the Guise, non-stop incubator of Romance. The ministers who rave about the "£70,000 night club" should be taken to the Guise. To hear them on night clubs, one would think such places are sought out only by the vicious, libidinous and drunken.

A few days tramping in glorious September weather, along from Killin to Pitlochry, revealed to a Pyrenean fan that the same class of scenery is to be found in Britain; at much lower altitude but as entrancing. It was hereabouts I ran into the Poles, some of them recovering in a once-famous castle from broken bones, result of paratroop training. They had Polkas to tend them. Some had just participated in a realistic invasion rehearsal that extended to aniseed "gas" and window-breaking "thunderflashes." The great thing was that Civil Defence was brought bang into the picture.

It seems that one protection against surprises in the cut-off Highlands consists of a "bush telegraph." Ghillies, keepers, stalkers and crofters have arranged a code on the pipes and it can be heard for many miles up and down glens. Some Home Guard posts in these regions are twenty hours apart.

Well, so much for a few days in Scotland, whither about 12,000 have evacuated themselves from England and Wales. As for alleged holiday-makers in luxury coaches, I saw none. The tussle for accommodation and its cost mitigate against them. Said an old Londoner at Aberfeldy: "We have a gloomy winter ahead, hard and frigid. But we came here and it 's not for us to go sampling round the British Isles."

A GROUP OF CHEERY BRITISH OFFICERS IN A GERMAN PRISONERS-OF-WAR CAMP: This picture comes from Oflag VII D. It shows the following officers: back row (left to right) 2nd Lieut. G. F. Nelson, Q.V.R.; 2nd Lieut. C. J. J. Clay, Rifle Brigade; 2nd Lieut. D. A. Orr-Ewing, Argyll and Sutherland Highlanders; Lieut. F. M. Edwards, Royal Welch Fusiliers. In the front row (left to right) 2nd Lieut. P. C. Mitford, Seaforth Highlanders; 2nd Lieut. A. R. Porter, Middlesex Regiment; Major D. MacKessak, Seaforth Highlanders; 2nd Lieut. H. A. Davies, R.A.; 2nd Lieut. J. N. V. A. Lemieux, Hussars; 2nd Lieut. C. H. W. Troughton, Ox. and Bucks Light Infantry

A NEW SPHERE OF USEFULNESS FOR THE COASTAL SEARCHLIGHTS: Lighting up a British aircraft which fell into the sea near the coast and which was being sought by rescue units—*Drawing by Roland Davies*

Of late, searchlights around the shores of Britain have been performing a task for which they were not primarily intended—the rescue of British crews whose aircraft have fallen into the sea after a patrol or bombing raid. By concentrating their powerful beams they have been able to direct rescue parties to the exact location, and have thus earned the gratitude of a number of airmen who might otherwise have perished. The aircraft in Mr. Davies's drawing above is a Wellington bomber, with Rolls-Royce engines

SEARCHLIGHTS ACTING AS "TRAFFIC POLICE" OF THE SKIES—*Drawing by Roland Davies*

The work carried out by searchlight crews all over the country may often appear haphazard to the un-informed watcher on the ground; but there is usually a good reason for their various antics. The searchlights often form a guiding line for our own aircraft (as above), whilst at the same time forming a barrier against hostile bombers

PREPARING for the BOMBERS

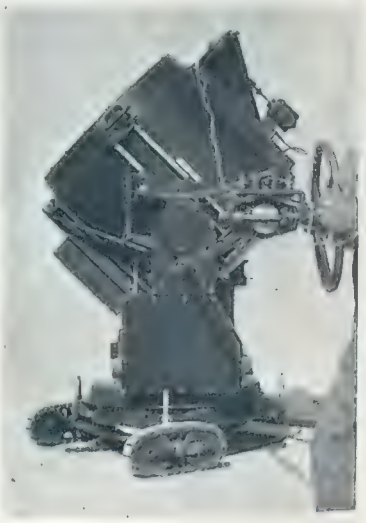
The Latest Developments in the Operation of Our New Searchlights and Guns

By J. P. LAWRIE

IT would be impossible to single out any section of the fighting services which is not dependent upon the ingenuity of scientists for its continued and increasing efficiency, and nowhere is this more evident than in our anti-aircraft organisation. The war of 1914-18 is inevitably used as a basis for comparison, but it is not always reliable to do so, since many discoveries, impossible in those days, are now commonplace. Thus an early mechanic may well have sought how a simple clockwork motor could be constructed, but had to wait until the discovery, by another, of the method of making springs.

Guns form the loudest background to air raids and, although we know that in 1918 London possessed 266 guns for her defence against raiders—it is impossible to give any idea of the number at present in use—we can rest assured that it is not less. In 1914 we had no defence against aircraft, and tales are told of light field-guns being propped up in pits to secure the needed elevation; 1941, as the inhabitants of any city know, finds our gun defences strong and varied. The last war evolved the 3-in., 20-cwt. anti-aircraft gun, and a number of these, modernised to give a higher rate of fire and greater mobility, are still in use. This modernisation was made possible by the constant experiments which have produced the 3·7-in. gun, needing a crew of ten men. This gun can send its shells to about 40,000 ft. A heavier gun is the 4·5-in. and the practised ear can distinguish the "bark" and "woof" of these defensive armaments. The development of dive-bombing called for a light, quick-firing gun, and for this purpose was produced the 40-mm. Bofors two-pounder. Against low-flying planes this gun has an astonishing accuracy and high rate of fire.

Developments have also taken place not only in the kind of explosives used in the shells and as propellants, but in the fuse material of nosecaps and in the shape of the shell. An improved propellant explosive may require an altered shape to the nose of the shell, whilst the fuse materials must be accurate and reliable—this is evident when it is realised that the shell from a 3·7-in. gun takes 16 seconds to travel 18,000 ft. up.



A MODERN SEARCHLIGHT: Note the tiny caterpillar wheels on which the searchlight moves into position. Its direction and elevation are controlled by the large hand-wheel on the right

CLEANING THE SEARCHLIGHT to ensure a maximum of efficiency when in action

We are told, officially, of "other devices" used against enemy aircraft, and we doubtless all have our own ideas on the subject. Much publicity has been given to so-called "Death-Rays," and highly useful they would be. The idea is not at all fantastic, as so many think—destructive rays and beams *do* exist, but are difficult to apply "commercially." If of sufficient intensity, a beam or "ray," of heat would, for example, shrivel up and destroy an aeroplane. Such a beam is possible, but enormously difficult to produce and operate.

Location of aircraft by mechanical means forms another instance of the adaptation of existing means and their subsequent improvement. The ears of the Royal Observer Corps are still used but cannot locate with the accuracy demanded for gunfire. Mechanical ears consisting of large trumpets were speedily made, the whole being, in effect, a giant stethoscope. The evolution and improvement of microphones enabled sound-location to stride ahead until the recent announcement of "Radiolocation" showed that "rays" and "waves" are being used for this purpose also. We may rest assured that the last word has not yet been said in this respect.

In 1914, as with A.A. guns, searchlights for spotting aircraft did not exist; the lights we then possessed were for the job of spotting enemy sea raiders near our shores. As with the guns, mountings were improvised to secure elevation.

Drawing by Roland Davies

HOW THE ANTI-AIRCRAFT BATTERIES BREAK UP ENEMY FORMATIONS

"Raids on any serious scale are made by bombers flying in formation, with a frame of escorting fighters," writes one air expert. "While that formation is retained, it is more difficult for our night fighters to attack effectively. In this situation the guns do excellent preliminary work in breaking up the formation. With the escort detached, and the bombers dispersing to dodge the *flak*, our night fighters can get in among them"

Height-finders and range-finders operate, of course, on the basis that if two sides of a triangle are known the third can be calculated, and advances in these instruments are mainly in the provision of improved lenses and prisms to increase their range.

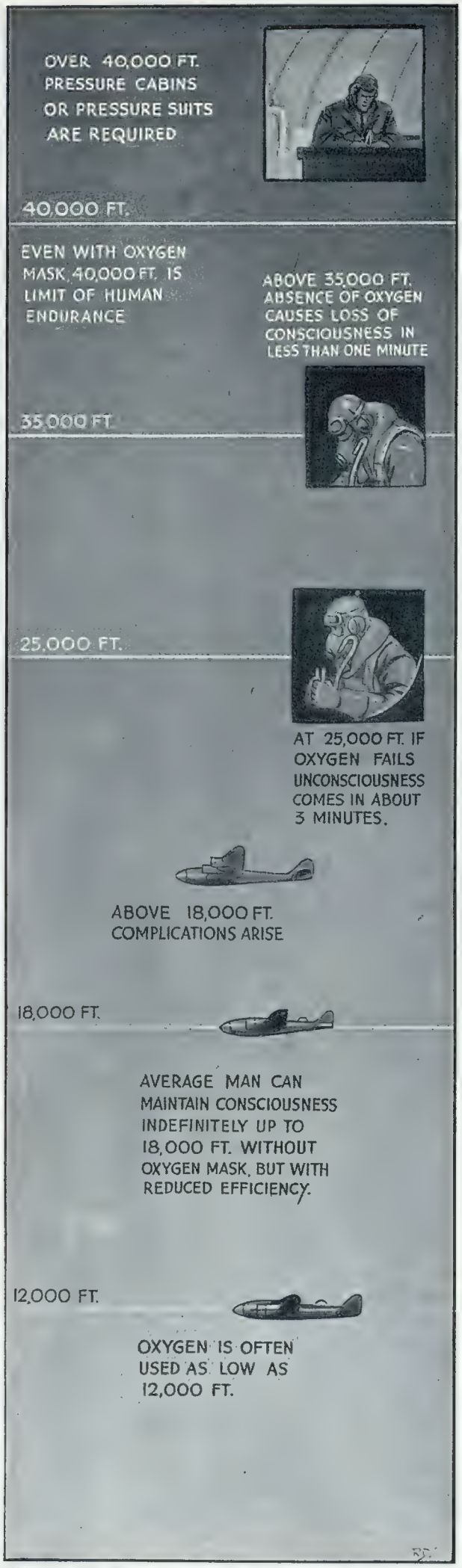
It is obviously not possible to discuss the actual improvements now in use or nearing completion, in the guns and other equipment of our anti-aircraft defences, but enough has been said to indicate that startling advances have been made and will continue to be made. The results of these improvements can be seen in the figures relating to anti-aircraft shell expenditure. In 1914 thousands of shells were fired per raider destroyed. In 1941 only hundreds of shells have been necessary, and this number may well be reduced in the future. In the meantime, night-fighters, balloons, searchlights, range-finders, predictors and guns combine to make night raiding an unhealthy and unprofitable pastime for the Hun and provide ample scope for the inventiveness and skill of those scientists so nicely described as the "boys in the backroom."

THIS MOST COMPLICATED MECHANISM IS A "PREDICTOR": It is usually employed in conjunction with the height-finder seen *on the right*. By means of these two instruments the A.-A. gunners are told exactly where to put their shells when firing at hostile aircraft. The girls operating the predictor are all members of the A.T.S., and all are wearing battle-dress of the same type as that worn by the Army

Once needed, searchlights for A.A. work were soon forthcoming, and in 1918 London was ringed with over 350. Those in use to-day are of enormous range and candle-power; the 90-cm. searchlight throws its beam to 20,000 ft. Others have beams of over 800,000,000 candle-power. Here again, science plays its part in devising better electrodes, cooling devices and reflecting surfaces, whilst the beams themselves can be used to illuminate an aircraft so that night fighters can get it, A.A. guns sight it, or a mass of beams can so illuminate an area of sky that a raiding plane is forced to avoid it, thus suffering in its bombing accuracy.

It is obvious that searchlights need the assistance of sound-locators, and guns of both, together with a "predictor" to indicate where the plane will be at a given time in the future. A simple calculation will show that a plane flying at 300 m.p.h. will move one mile in 12 seconds. The predictor is an ingenious contrivance that, in conjunction with range-finders and height-finders, rapidly and mechanically calculates the future position of the aircraft and transmits this information to the gun-dials by electrical means. Thus a plane flying 300 m.p.h. at 18,000 ft. will need shells diverted to its path some 1⅓ miles ahead. The greater the speed of the aircraft, the more necessary becomes the accuracy of this very tangible form of prediction.

THE HEIGHT-FINDER, WHICH USUALLY WORKS WITH THE PREDICTOR: The two girls of the A.T.S. to right and left are each operating a section of the height-finder: whilst the girl in the centre is studying the combined view



THE NEW TACTICS IN AIR WARFARE: Britain's greatest developments are being made in stratosphere and sub-stratosphere flying—A diagram which shows the effect of height on the physical endurance of aircraft crews—*Drawing by Roland Davies*

With the war in the air in its third year, the tendencies in air development are now becoming apparent. The German Air Force is evidently going for increased speed; the R.A.F., however—whilst not by any means neglecting speed—are using height to obtain their crippling blows on the enemy. High-flying of the sort in which the R.A.F. is now specialising has brought its own problems, some of which are outlined above. Up to 12,000 ft. there is no need for oxygen for pilot or crew, but above this height it is usual to resort to the oxygen mask, although an average man can maintain consciousness without it up to 18,000 ft., but with reduced efficiency. Above 18,000 ft. the rarity of the atmosphere begins to introduce complications; and at 25,000 ft., if the supply of oxygen were to fail, unconsciousness would come in about three minutes. Still higher—at 35,000 ft.—an absence of oxygen would cause unconsciousness in less than one minute. At a height of 40,000 ft., even with an oxygen mask, the limit of human endurance is reached; beyond this, pressure cabins or pressure suits are essential

THE COCKPIT of the FIGHTER

By LEONARD R. GRIBBLE

RECENTLY, during one of the Channel sweeps, a Hurricane squadron found itself opposed by a Messerschmitt swarm outnumbering it by nearly seven to one. The battle was at its most furious when one of the Hurricane pilots heard a fellow-pilot shouting over the radio, "Look out, Jack! Right on your tail!"

The threatened pilot dived steeply, and came up again with guns blazing, to send his would-be killer scuttling for the French shore-line, his wings perforated. As he levelled off, he saw that the pilot who had warned him was trying to stave off the attentions of four of the enemy, who were pumping everything they had at the British fighter they had cornered. He hurried to engage the nearest, but before he could bring the Messerschmitt within his sights, he saw his friend's plane dip and begin spiralling down out of control. A black speck flung clear of the doomed British fighter, and a parachute snapped open and drifted in the clear air, like a silken puff-ball.

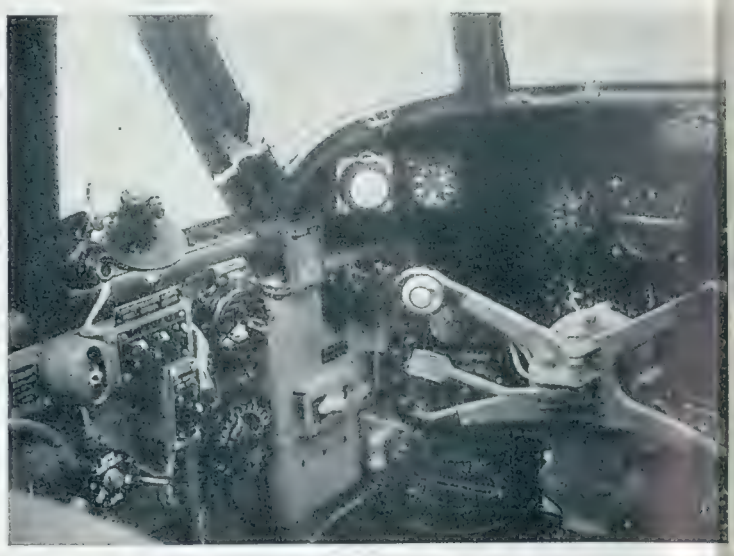
The man who had been saved by his friend's warning turned down the nose of his Hurricane and circled the drifting parachute protectingly. Enemy planes swooped and blazed at him, trying to get him at a disadvantage. He did not return their fire. He continued his circling patrol, guarding the man pitching and swaying at the end of the 'chute.

Inside his narrow cockpit his sharp eyes were studying a bewildering array of dials and gauges, recording the very heart-beats of his slim aircraft. He knew that if one of those screaming cannon-shells found its target, he might well have to bale out like his friend, and follow him down to the "drink," as the Channel sweepers refer to the Straits they criss-cross daily.

His gaze swept over the six large dials in the centre of the panel in front of him. All around him were screws, buttons, throttles, gauges, indicators and control points, meeting his gaze in whichever direction he glanced.

In those minutes of vigilant patrol he was both captain on the bridge and engineer in the control-room. Some sixth sense made him aware of the plane diving on his tail. With feet on the rudder-bars, hands gripping the control column, a thumb ready over the firing button, he cleverly side-slipped and met the attack with a furious burst. The attacker sheered off. When he looked down, he saw the bright-coloured dot where his friend had come down in the sea and was clambering into his yellow-painted, one-man rubber dinghy. His job of protection over, he climbed again to rejoin the squadron.

Just an everyday incident to the cockpit *conquistadores* of the R.A.F., but it is for such incidents that the R.A.F. fighter pilot is trained throughout long, arduous months. He has to know his plane as he knows himself. Handling it, summarising the information of those numerous dials and exercising a kind of air instinct, without changing himself into a mechanical robot.



THE COCKPIT OF A BOMBER DIFFERS FROM THAT OF A FIGHTER: The control column, or "stick," of the fighter has here become the "spectacles" of the bomber: apart from the other instruments—most of which are common to both types of aircraft—this aeroplane is fitted with "George," the automatic pilot which flies the aircraft for long periods at a stretch

Governed by his instrument panel as he is, obeying rigid mechanical and physical laws he must somehow still manage to remain an individual, capable when it is necessary of split-second individual thought and action. There must be a touch of Bader and a spark of Cobber Kain in every R.A.F. pilot who wins his wings.

Of course, improvements in types, with the advent of newly-designed devices, frequently means more gauges and dials. As the wag of one squadron put it not so long ago: "If they stick an alarm-clock in my cockpit, I'll have to ride on the roof. There won't be room for both of us." But the R.A.F. pilots, one and all, love nothing better than to try out an improved type of an old favourite, a "hotted-up" model of a tried and trusted performer. "If you've got something fresh from the factory, let's have it," is their attitude. "We'll give it the works."

The Me 109 and the Hurricane Compared

"Wishful thinking" apart, it is undeniable that British warplanes are superior in almost every way to their enemy counterparts. The diagram reproduced on the right shows—with scrupulous fairness—the surprising difference between the instrumental and control equipment of the British Hurricane and the German Messerschmitt 109—or "Snapper," as the R.A.F. very aptly dub it. This difference is as eloquent of the higher standard of training given to British pilots as it is of the better performance expected of the machines.

The instrument-board of a modern fighter is surely one of the most impressive demonstrations of applied science yet to be found anywhere. Merely to run over the instruments is to have a fascinating story sketched out of the pilot's work, a tribute to his trained skill, and to the prowess of his machine.

The side of the cockpit and the armour plate behind the pilot have been cut away in the drawing in both cases. Inset in the bottom left is the port side bay, which is hidden by the pilot in the main drawing.

Here is the complete key to the items shown in the drawing: the figures correspond in both machines, but some notable gaps will be discerned in the equipment of the German aircraft:—

1. Magnetic compass: that of the Me is of the inferior bowl type.
2. Directional gyro: reset by knob from compass every quarter hour; the pilot then merely keeps its reading constant.
3. Gyro, or artificial horizon: this shows lateral tilt when the pilot is flying in heavy weather and cannot see the horizon.
4. Climb or dive indicated in thousands of feet per minute. This is necessary as, with the hood closed, there is little sensation to warn the pilot of dangerously high speed when he puts the nose of the aircraft down.
5. Air speed indicator: the outer readings are for speeds of 40 to 240 m.p.h.; the inner for speeds of 240 to 400.
6. Altimeter.
7. Slip (top reading) and turn (bottom) indicator. That of the Me is a crude imitation of the British. The Hurricane mounts the last six instruments, which are very sensitive, on a special shock-absorbing panel. There is no such panel in the Me, and only three of the instruments. This equipment is essential to blind flying. Some German planes instal what is an inferior approximation only.
8. Compass deviation card.
9. Undercart wheels and tail-wheel position indicator Horziontal slots, lighted red, up: vertical, lighted green down.
10. Duplicated switches for 9.
11. Oxygen being delivered, and how much needed for height.
12. Amount of oxygen remaining.
13. Emergency boost. Cuts out all engine control except throttle, to give extremest power. Use for as long as five minutes would probably wreck engine.
14. Clock, with stop-watch and time of trip.
15. Electric starter.
16. Magneto switches.
17. Gun-warming and navigation-light switches.
18. Engine-revolution indicator.
19. Reflector gunsight switch.
20. Boost gauge. Shows pressure of mixture to engine.
21. Reflector sight dimmer.
22. Amount of fuel, with switch above. In Hurricane latter has three-point selector above for the three tanks.
23. Oil pressure.
24. Fuel pressure.
25. Oil temperature.
26. Radiator temperature.
27. Primer.
28. Gun-firing button. In Hurricane, whole stud is first rotated from safety to firing position. In Me, a safety-catch over button on top hinges down behind the one-hand grip.
29. Wheel-brakes lever.
30. Head of stick cants for aileron control in Hurricane: in Me the whole stick.
31. Air-pressure gauge.
32. Star-wheel adjustment for leg length to rudder-bar.
33. Recognition lights switch with Morse key.
34. Four-way selector box to operate wheels and flaps.
35. Lever to engine-drive for same.
36. Flaps position indicator.
37. Firers for forced-landing wing-tip flares.
38. Auxiliary hydraulic pump.
39. Harness bolt.
40. Seat-height adjustment.
41. Hood-locking lever.
42. Oxygen plug.
43. Engine data plate.
44. Warning buzzer. Blares automatically if undercart not lowered when engine cut out while gliding steeply.
45. Mixture lever, to vary richness with height.
46. Throttle.
47. Three-way landing lights switch.
48. Fuel switch.
49. Radiator shutter position indicator.
50. Radiator shutter lever.
51. Landing lamps tilter.
52. Tail-trimming wheel.
53. Screened lamps.
54. Their switches.
55. Tail plane indicator.
56. Emergency undercart retracting wheel.
57. Airscrew pitch control, on Me only.
58. Indicator for same. A better system is now general in British machines.

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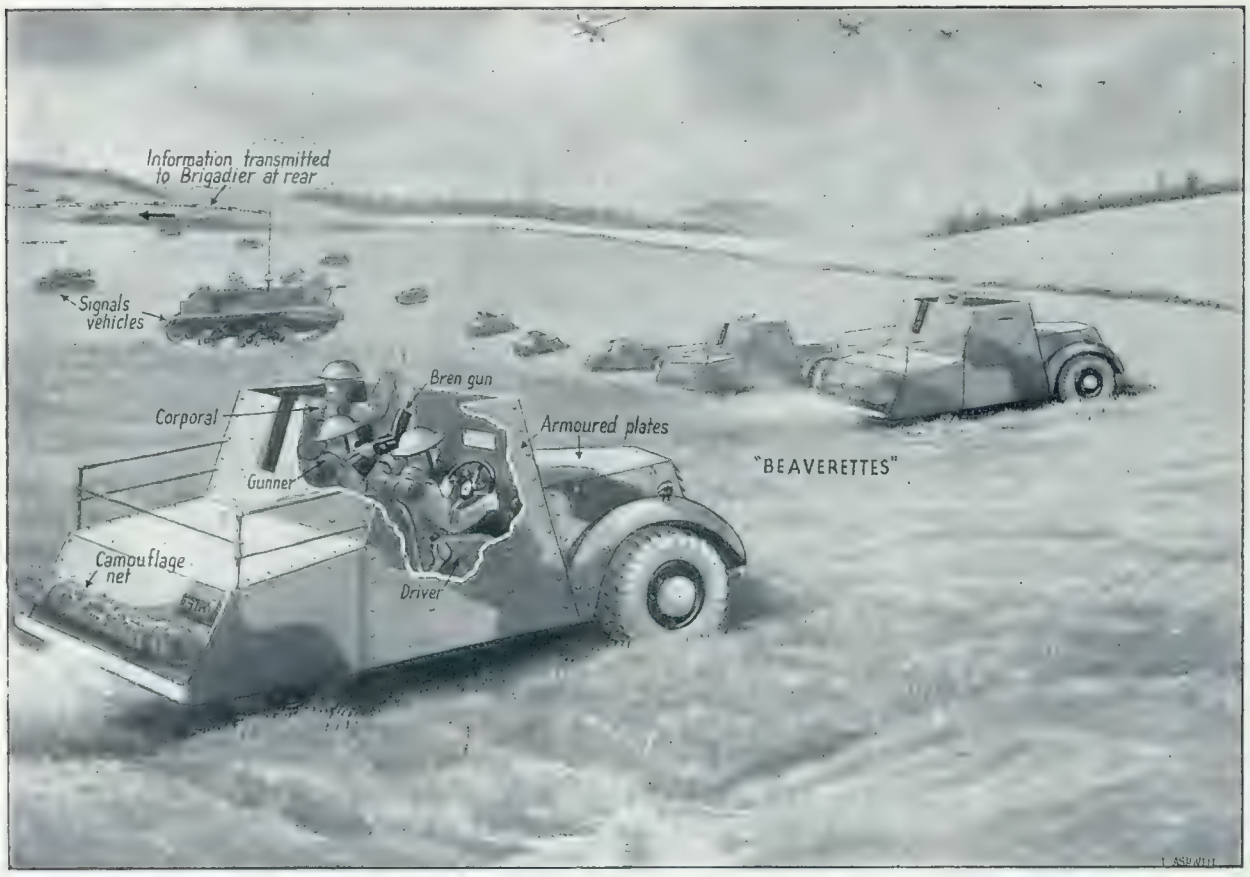
THE COCKPIT OF A MODERN FIGHTER AIRCRAFT: A HURRICANE PILOT AND THE VAST ARRAY OF INSTRUMENTS ON THE PANEL OF HIS AIRCRAFT. Inset above is the cockpit of a German Messerschmitt, the number of whose instruments and their accuracy is far below that of its British counterpart—*Drawing by G. W. Clatworthy*



SIGNALS UNITS OPERATING WITH THE NEWLY-FORMED "RECCE" BATTALIONS, OR RECONNAISSANCE CORPS: These battalions form the spearhead of an advancing division and operate on similar lines to the old divisional cavalry. They are composed of Bren-gun carriers and the new armoured cars known as Beaverettes (a tribute to Lord Beaverbrook, who is now in charge of tank production). Information is sent back direct to the brigadier, who is following in his armoured command vehicle known as the "Dorchester." (This was fully described in a recent issue of *The Sphere*)

THE EARS OF THE ARMY

How the Royal Corps of Signals has Kept Pace with the New Methods of Warfare

Described by DONALD COWIE

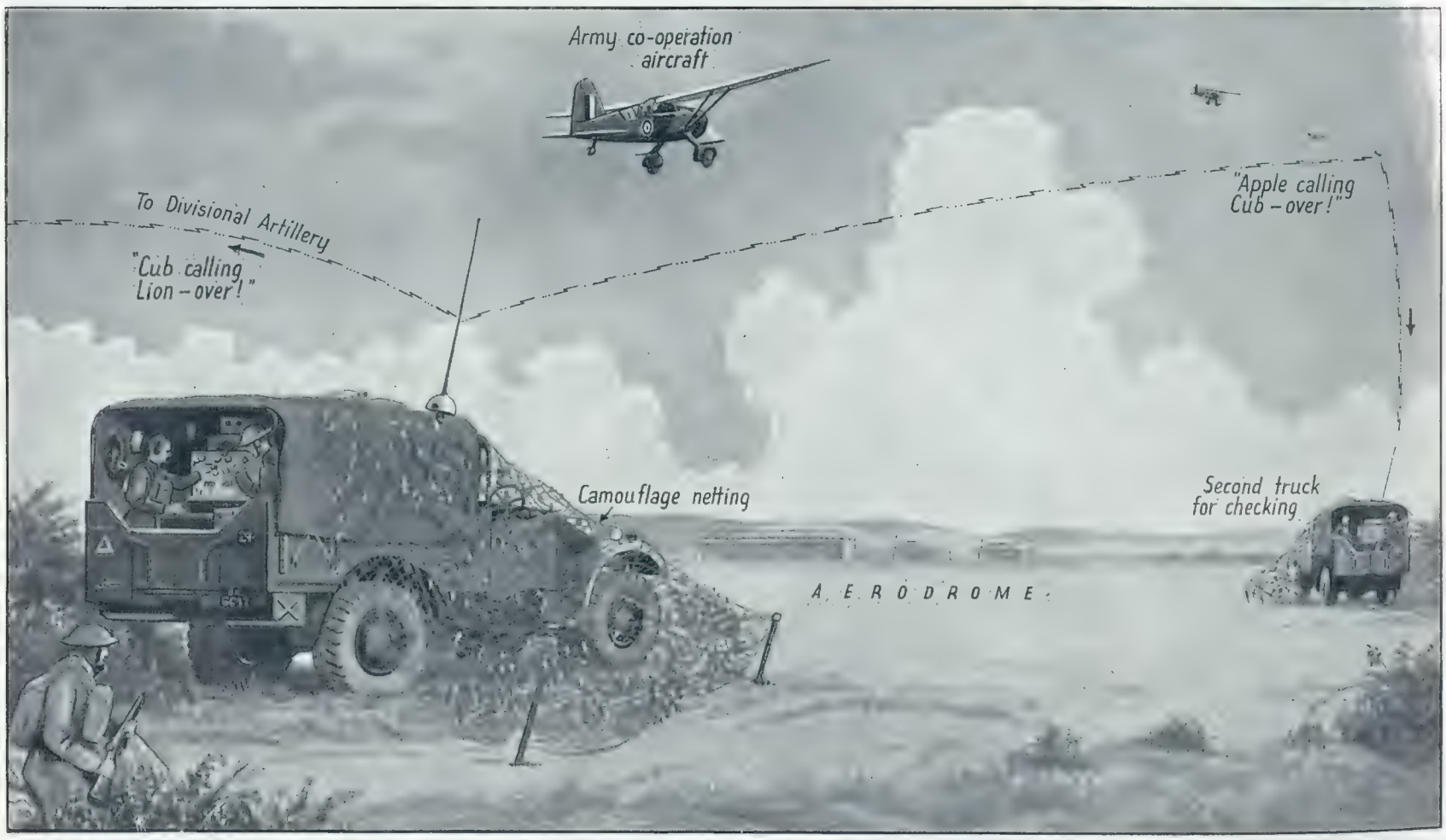
Illustrated by L. Ashwell Wood

THIS war has seen many revolutionary changes in methods of land fighting, but perhaps none have been so remarkable as those sponsored by the signallers. Only two years ago, when describing how the Army maintained communications (other than transport), it was customary to say that the field-telephone, operated by land-wire, was still the most important device, and radio little more than an adjunct. But the development of mobile tactics has completely changed requirements—and our Royal Corps of Signals has adapted itself wonderfully to the new situation. Theirs has indeed been a triumph over military conservatism.

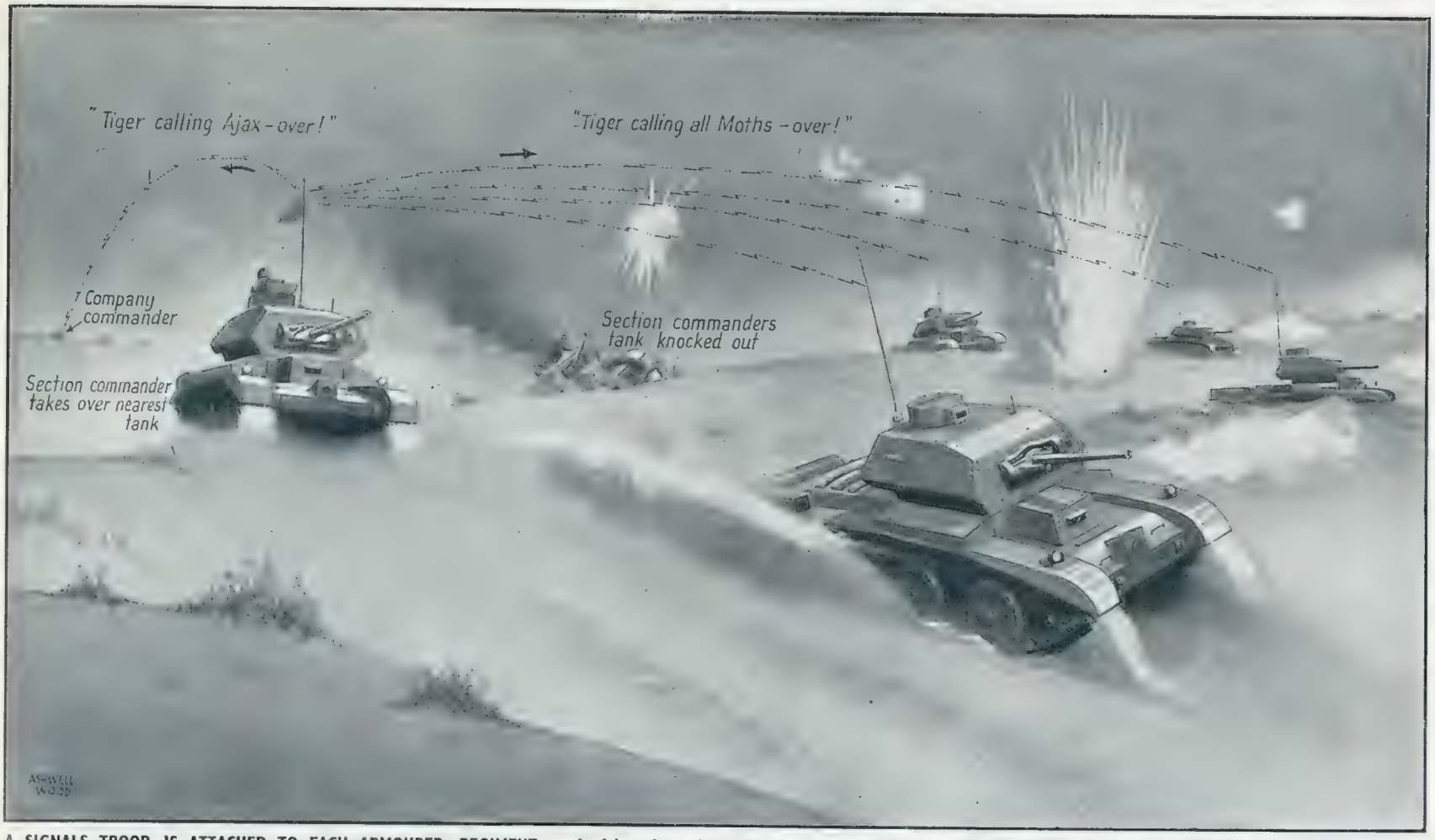
The function of the Corps is to supply expert personnel for establishing communications, and to train seconded personnel from other units, who return to use their craft as battalion specialists. Formerly—up to the Battle of France, and even later—the organisation was essentially rigid. It still belonged to the era of the fixed front, and so the chief emphasis was upon the ordinary telephone and telegraph, with semaphore work for emergencies, and a liberal supply of carrier-pigeons.

The land-lines still remain. They are particularly prolific in this island fortress of Britain itself, and heaviest in areas of more or less permanent military occupation, mainly concerned with linking headquarters and outlying units. Hundreds of men are engaged on maintaining thousands of miles of land-cables (laid swiftly by special Signals lorries), and servicing the lines, especially as they link up with the ordinary post-office system. Most readers will have noticed the poles of the Royal Corps, as makeshift lines are established when a military unit takes up residence in a village or town. They will have watched ordinary soldiers being continually trained in semaphore signalling by N.C.O.s who have undergone a special course with the Royal Corps. The flash of the heliograph will have been familiar in countless valleys

On right—**"THE LAND-LINES STILL REMAIN,"** says Mr. Cowie in his accompanying article. "They are particularly prolific in this island fortress, and heaviest in areas of more-or-less permanent military occupation, mainly concerned with linking headquarters and outlying units." The men in the picture here are seen using a portable telegraphy set in the field



WIRELESS TANKS OF THE CORPS OF SIGNALS MAINTAINING COMMUNICATION WITH AIRCRAFT AT AN AERODROME: Information of the enemy's movements can be sent back direct from the aerodrome to the divisional artillery by this method. The type of aircraft shown here is the Westland Lysander, which was specially designed for Army co-operation work and which has already greatly distinguished itself in many different battle-zones. Note that the wireless cars have been decked with camouflage netting as a protection against observation by enemy aircraft



A SIGNALS TROOP IS ATTACHED TO EACH ARMOURED REGIMENT, and although each tank has its own wireless set they are maintained by Signals after battle: A tank section commander is shown in touch with all his tanks during action and also with his commander. Should his tank be knocked out, he immediately takes over the nearest one—if he has escaped personal injury, that is!

and across a hundred hills. But all that, though still essential in home bases, and always likely to be needed on any stabilised European front of the future, is basically out-moded and without interest for the really keen Signals man.

Nor is radio communication as formerly practised in co-operation with the land-line to be regarded to-day with exclusive interest. There has been a great increase in the numbers, and a great improvement of the portable radio sets carried by members of the Corps in the field. The general public is familiar with photographs of these apparatuses in operation. The set is stowed in a pack that can be carried on his shoulders by one man. It is operated by another soldier, who twiddles the knobs and wears the head-phones, while the first man lowers himself on one knee. A special aerial of the loop type is used, providing a maximum of selectivity and secrecy. Then there has been a widening of the use of the big radio vans of the Army, which, after coming to a stop, disgorge trestle-tables and a paraphernalia of apparatus like the interior of one of the engineers' rooms in Broadcasting House. But the real improvements are still elsewhere.

They may be said to involve an entirely new conception in military communications, only analogous to the wireless links between warships as they advance in wide formation. We must admit that the Germans brought the idea to fruition, although perhaps the Russians were also early in the field. Briefly, the conception is to be regarded as the basic *sine-qua non*, or the essential, of the armoured division method.

This method involves the self-contained mobilisation of an entire military formation in armoured vehicles, so that it can drive into enemy territory like a fleet, entirely independent. But it would be manifestly impossible for such a formation to operate unless the many vehicular units comprising it could be certain of maintaining constant communication with headquarters and each other. How could that condition be attained save by wireless? It is obvious that modern tank warfare would never have reached its present incredible dimensions but for the simultaneous development of radio.

Thus the Royal Corps of Signals, 1941 version, despite its preoccupation still with land-lines at bases, with semaphores, heliographs and motor-cyclists, is essentially a band of the most highly-skilled short-wave radio enthusiasts.

They have been working at high pressure for months now, these boys with the head-phones (with the radio factories working at equal speed behind them), and the general public, hearing broadcasts of tank exercises, is just beginning to appreciate the enormous and ever bizarre extent of their labours. One may not give the number of vehicles in an armoured division, but when it is realised that each of hundreds, from mighty cruiser-tanks to "beaverettes," contains a radio set so modern and finely adjusted that its operator can converse easily with another vehicle many miles away, the extent of the Signal Corps' recent development may possibly be appreciated. And the improvement in military communications, always an unsatisfactory part of the Army scheme, will have been apparent to the most ignorant layman who has heard those broadcasts of "Juno calling Baby," "Baby here Juno, over"; and the curious like. Indeed, a new language, a new terminology, has been practically invented in a few months to eliminate confusion between the thousands of units, and make for clarity of communication.

The new importance of the Royal Corps of Signals should therefore be clear enough. Actually, the Corps has been elevated by this change into a leading position among the specialists units of the Army. This was confirmed finally, perhaps, when a commanding officer of an armoured division first decided to establish his mobile headquarters in a Signals truck, since developed into a kind of tank, known officially as an armoured command vehicle. It was tacit recognition of the fact that the nerve-centre of the formation was situated, for better or for worse, in that Signals "radio exchange."

But sitting in such a vehicle as it speeds forward with the metallic division right through the battle-field, the commanding general can control his multifarious units as effectively as if they were horses of a team and he had the reins of each in his clever hand. More than that, he can *talk* personally to each one of them, just as if a magician had presented him with the Oriental power of thought-transference.

That is the high-water mark of the new system, and very nicely it reads on paper. It works with surprising efficiency in practice—as our armoured division demonstrated on its way to Benghazi across that untrodden desert; and as the Germans and Russians have been demonstrating daily for weeks past. But—and perhaps there should always be a "but"—it must be added that by one small admission the Signallers have shown that they do not claim complete perfection for their radio system. They still carry pigeons!

THIS MAN IS CARRYING A PORTABLE WIRELESS SET, WITH ITS OWN AERIAL: "The set is stowed in a pack that can be carried on his shoulders by one man. It is operated by another soldier, who twiddles the knobs. . . . A special aerial of the loop type is used, providing a maximum of selectivity and secrecy"

PIGEONS ARE STILL USED BY THE ARMY'S SIGNALLERS: The message carried by the pigeon is clipped in a small cylindrical container to its leg. The R.A.F., too, have employed carrier-pigeons with great success on many occasions

The ARMY has a "GROUND STAFF," TOO

How the Tanks and other Mechanical Weapons are Serviced and Repaired on the Actual Field of Battle

IT may have been noticed how the most mobile modern armies—those of the Germans in France, the Balkans and Russia; ours in Africa—do not continue advancing indefinitely, although they might have the ball securely between their feet. After about 300 miles or so, they invariably stop for a breather. Whether they continue the advance within a short space of time, and press home their advantage decisively, now depends largely upon the work of a certain unregarded, but indispensable, body of men.

These are the artificers and mechanics of (in the case of the British Army) the Royal Army Ordnance Corps, the mechanics of the Royal Army Service Corps, the sappers of the Royal Engineers, the armourers of the Royal Artillery, and a host of handymen attached to every unit on the war establishment, from infantry of the line to signals. Constituting the "ground-staff" of the Army, these important workers enjoy even less popular recognition than their corresponding numbers in the R.A.F. This is curious.

The curiosity arises from the fact that nearly every one of us in these islands has a relative or friend engaged upon work of the type mentioned. The extraordinary organism of modern war, attaining its apotheosis in the armoured division, is essentially a fighting automaton, which may win comparatively easy battles for you, yes, but only at the expense of unremitting effort on your part to keep it in proper running order.

Our first real test of the kind was during the advance through "first Cyrenaica." Without constant plunging into the tool-box on the part of the crews, those forward tanks would never have been able to keep it up over the broken terrain and through the constant dust-storms, nor would the clumsy infantry tanks and the many vehicles of the main body have endured such a terrific strain. It has been said that, after the final battle past Benghazi, our vehicles and guns were very nearly finished. But the infantry division, mainly Australians, was able soon after to fight a magnificent rearguard action against the heavier Germans, and then to take that famous side-switch into Tobruk.

Imagine the reconditioning of weapons that was required immediately then! Possibly the mobile workshops of the R.A.O.C. had long since been left behind. But, as mentioned, the Army is not mechanically dependent upon the R.A.O.C. alone. Thus every company, almost every platoon, of the Forces which slipped into Tobruk would have had its soldier-artificers, and its equipment of hand-tools and spares, specially designed for emergency work in the "front line." Each battery of the Royal Artillery has its armourers and mechanics; and trained armourers are attached to all infantry formations. Dealing nowadays with automatic weapons, such as the Bren, Lewis, Vickers and Tommy-guns, as well as ordinary rifles, they have to be well trained at their job. Any one of the thousands of parts in a machine-gun may require mending, oiling, filing-down or replacing while the battle is still on. It has been the definite experience in our campaigns so far that the provision of such service is even more important than that of a constant supply of ammunition and food.

Similarly, the Royal Armoured Corps must not depend upon the R.A.O.C. alone, but must carry its mechanics with it in the spear-head of the battle. Thus training aims at making every member of the tank crew, including (and especially) officers, capable of effecting what motorists know as running repairs. The tankee is essentially the fighting technician, and when his vehicle splutters to a standstill right on the brink of the enemy parapet, he must be able at once to take down the self-starter and readjust the cog-clip, or replace the one defective plug, or investigate a slipping clutch, or examine the track controls.

The R.A.S.C., responsible for transport communications and for bringing along supplies, living for (and on) a variety of vehicles, from baby cars to giant eight-wheeled lorries, must also be prepared at any time, in any place, to effect its own running repairs; and this applies similarly to those who handle the vehicles of all formations, despatch-riders to ambulance-men. Fundamentally, however, the Royal Army Ordnance Corps does remain the principal artificer of the Army. A mobile workshop of the Corps is incorporated in each division, and is so equipped that it can effect almost any kind of repair to armoured cars, tanks and artillery.

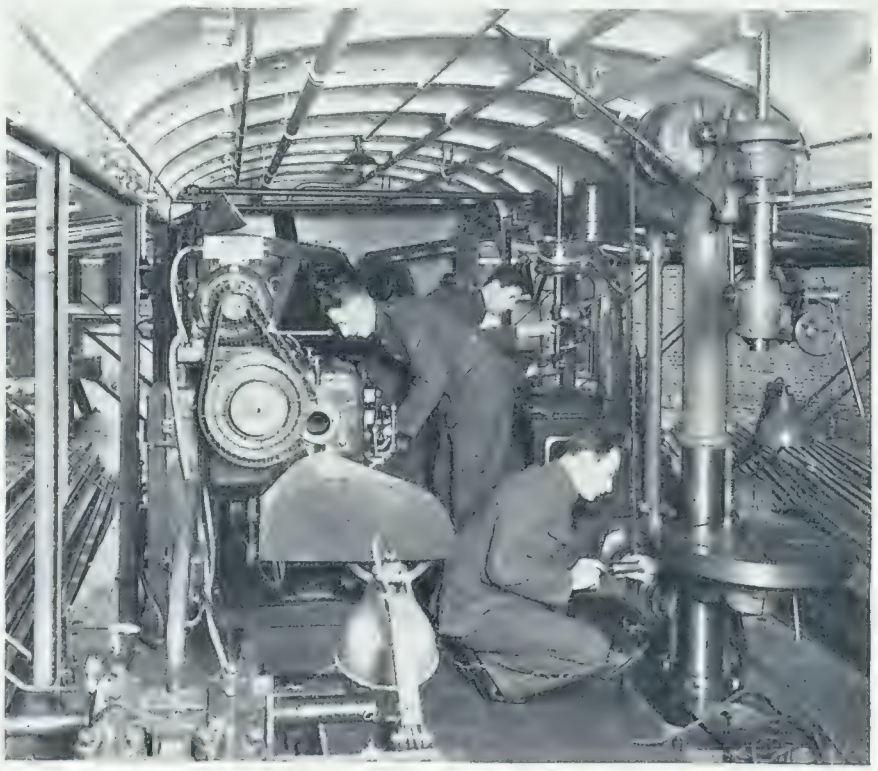
It will drive right up to a tank which has suffered damage beyond the power of its crew to repair—such as a twisted track. Taking in the situation at a glance, the R.A.O.C. men (some nine or ten travel with the workshop) will leap out with spanners, anvil, hammer and fire. Perhaps they will proceed to work in the face of the enemy, and have to rely upon the tank crew to protect them. Within a long quarter of an hour they will have the track remodelled and turning merrily again. Then another call will come, possibly by wireless, to a "gunhow" battery, which has been tinkering vainly with a fractured oil-reservoir on one of its vital guns. Indeed, they will never be without a job while the battle lasts—and then their real work will begin, the task of reconditioning weapons and vehicles in the shortest possible time, so that the offensive can be renewed. An R.A.O.C. estimate of the time required for this may well decide the outcome of a war.

Far behind the "lines," and especially in a country like Britain at present, the R.A.O.C. works continually at repairing and putting new life into salvaged weapons and vehicles. They are the real savers of public money in the Army. They have, for instance, been very busy in East Africa and Syria lately, at seeing what can be made of captured Italian equipment.

D. C.

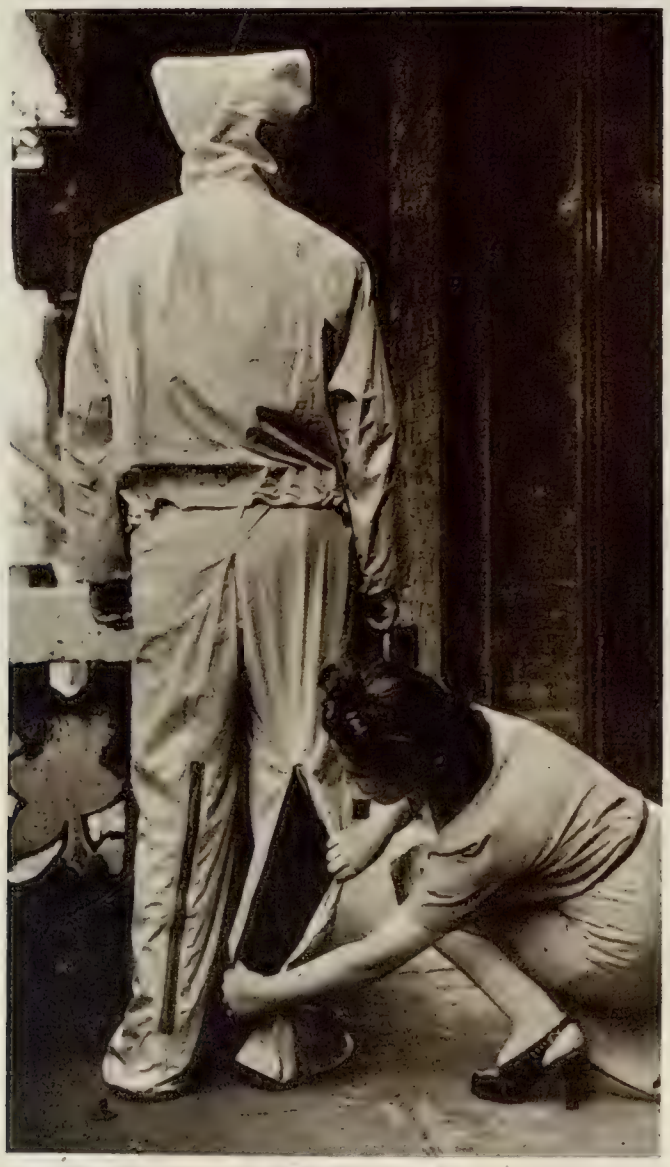
Drawing by E. G. Lambert

OUT IN THE WESTERN DESERT: A mobile repair workshop of the Royal Army Ordnance Corps assisting a disabled tank under shell-fire from the enemy. The R.A.O.C. are prepared to rush their specially equipped lorries to any disabled tank and undertake emergency repairs even whilst under shell-fire (*see accompanying article*)



A MOBILE RAILWAY WORKSHOP FOR USE WITH THE ARMY: This workshop is of a type which was originally evolved for service with the B.E.F. in France: it was designed to run on the railway track for greater mobility, and it was equipped with the most up-to-date machinery to deal with all but the very heaviest of repair work

LIFE-SAVING DEVICES in the R.A.F.

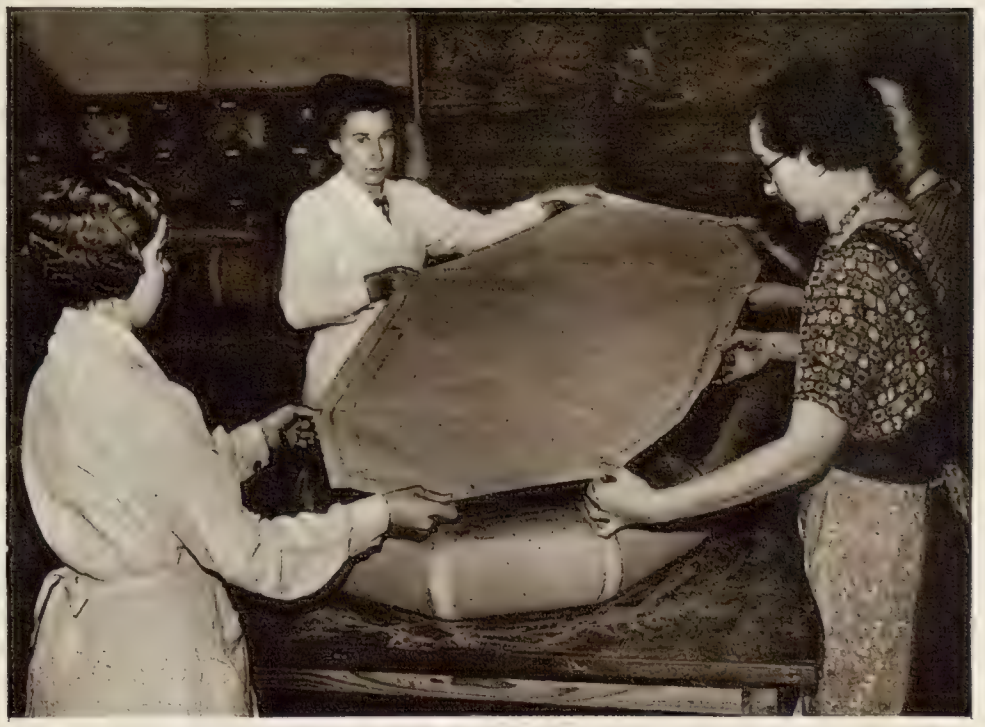


"RAFT SUITS" READY FOR BRITISH SEAMEN: One hundred thousand of these special "exposure suits" will be ready for the men of the Merchant Navy in a few weeks. They have been designed by experts of the Ministry of Shipping, specially to protect men on rafts or in open boats from wind and weather. The suits are of a rubberised material, and they are made in two pieces with a zip fastener. They are so made that the legs can be massaged one at a time

THE LATEST TYPE OF RUBBER DINGHY, in which the pilot can cover himself, so keeping warm and dry. Hood and sheets can be fastened so that only the face is exposed: When packed, this dinghy is used as a seat by the fighter pilot: to bring it into use in the water a cord is pulled and the dinghy is inflated with carbon dioxide in ten seconds. A baler is also included in the outfit together with small hand-paddles, and the whole thing is completed by cigarettes and chocolates. The dinghies are being made in a factory which formerly made women's corsets, but which has now been turned over to the Ministry of Aircraft Production. With all its accessories, the dinghy goes into a case which only measures 15 in. by 15 in. by 3 in.!

A "MANNEQUIN PARADE" TO SAVE THE LIVES OF OUR AIRMEN: Whether the pilot's parachute opens properly when the rip-cord is pulled depends largely on how it is packed. That 's why "mannequin parades" are held at the parachute-packing centres, so that the W.A.A.F.s who do the packing may be certain that they do their work properly. The parachute shown in this picture is a new pattern: it is attached to a jacket which is capable of keeping a man afloat should he come down in the sea

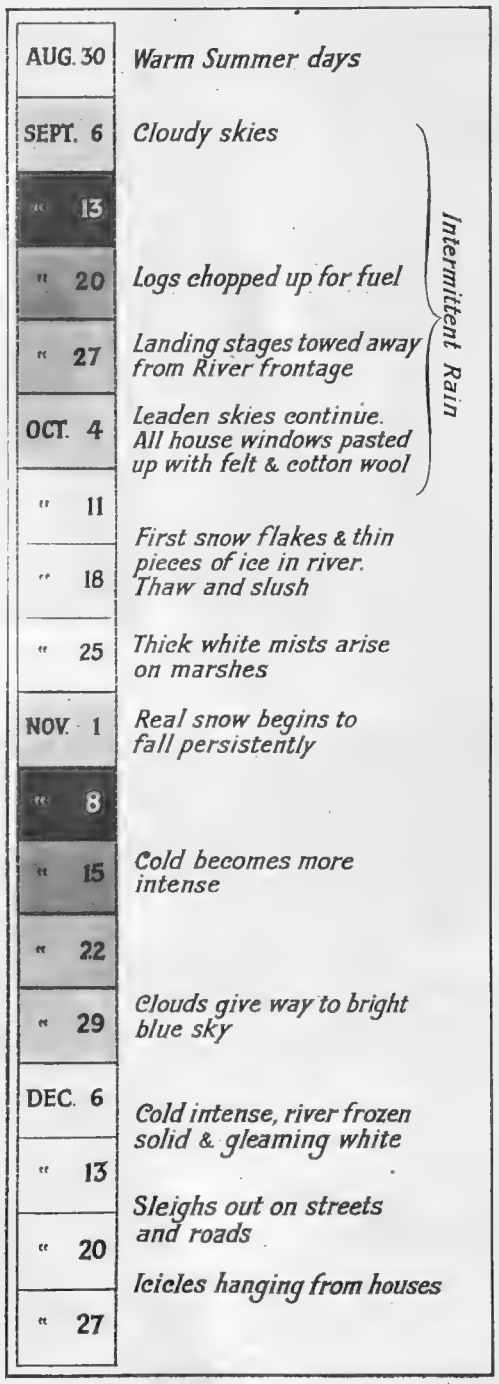
A GIRL WORKER TAKING COMPLETED "MAE WESTS" FOR TESTING: At one of the Ministry of Aircraft Production's factories many girls are busily engaged on the manufacture of the famous "Mae West" life-saving jackets worn by our air crews. It is to these jackets that hundreds of fighter and bomber pilots have owed their lives when shot down over the sea



FIXING THE "FLOOR" OF ONE OF THE NEW RUBBER DINGHIES now being turned out for R.A.F. fighter pilots in a Ministry of Aircraft Production factory

THE RAINS CAME—and they have been seriously impeding the German advance in many parts of Russia—*Drawing by Roland Davies*

There has been much talk concerning the weather in Russia and how the coming of winter may affect the German plans for their campaign in that country. A good deal of misconception prevails in this respect, however; many believe that the winter falls with extreme suddenness—one day conditions being summery and good, the next day the ground covered with snow and ice! That this is not so is demonstrated by the chart below and by its accompanying notes. Already, however, in some districts the Germans have been hampered by the gradual deterioration brought about by heavy rain: the picture reproduced above (redrawn from photographic material) depicts an armoured train almost bogged on its way up to the battle zone. Roads—except some of the best metalled ones—have broken under the strain of military traffic for which they were not designed. Deep ruts and thick mud have impeded the advance and held up much-needed reinforcements



HOW WINTER COMES TO RUSSIA: A typical weather chart for the northern districts which shows the change from rain and snow to intense cold and ice (*See notes on right*)

The WEATHER as a MILITARY FACTOR in RUSSIA

WEATHER conditions have always been one of the main factors to be considered in the conduct of a military campaign. Nowhere has seasonal change proved more decisive than in Russia.

No doubt Hitler had intended to start operations quite a month earlier, giving him more ease in time, though in any case the campaign was not expected to last more than six to eight weeks at the outside calculation. But already this limit has been passed and the main objectives have not yet been obtained. Autumn is approaching and time is getting short.

The first mention of rain in the Russian news appeared in the third week of August. Later one heard that heavy rain was continuing in the central area. German troops were being hampered by the rain which clogged them on the Minsk-Bobruisk line, and added a further burden to their dread of the Pripet Marshes. On August 30 heavy rain was again reported on the battlefields to the west of Moscow, and on the 31st continuous rain on the Karelian Isthmus and round Lake Peipus.

With the beginning of September the same record of heavy rain continued. The roads which had once been all dust round Gomel were now muddy tracks, the ground being peculiarly soft and sticky. Torrential rain was forcing the Germans to take up a more defensive attitude, the country being too swampy for rapid movement. On September 3 it was stated that only the main roads to Leningrad were usable.

Preparations for the winter, which is expected about the beginning of October, are being rushed forward in the Reich. Orders for wooden barracks have been sent

(*Continued on following page*)

HOW THE RAINS FALL IN RUSSIA: Heavy around Leningrad, Moscow and Kiev; and very heavy in the Caucasus. Elsewhere the rainfall is not so great (*See notes on left*)

After the first ten days in September, the summer is over, nor can one expect any return of a St. Martin's Summer. I can remember days early in September in old Petrograd which were almost as warm as summer, and then, with almost startling suddenness, the sun would be obscured, and the Neva, whipped into little angry waves by the constant winds, seemed the colour of steel.

The huge stacks of logs of wood which all during the summer months had been unloaded from barges were being chopped and sawed into small pieces. The passenger steamers going up and down the Neva were no longer crowded, and during the last week of September, little black tugs towed away the wooden, green-roofed landing-stages which had been moored at different places down the quay. Early in October, men, specially trained for the job, came to paste up the windows in all the houses. Then, towards the middle of October, or sometimes even earlier, the first half-frozen flakes of snow would drift down. For a few days, perhaps, the snow would lie, and then would come a sudden thaw and pelting rain, which turned it first to yellow slush and then to mud. Out in the country the roads would be almost impassable; in the flat, low-lying plains round Petrograd, thick white mists would rise from the marshes.

But at last, generally late in October or early in November, the real snow would come. The pieces of ice floating down the river thickened, crashing against the arches of the bridges, piling themselves up, getting jammed together, freezing. Sledges took the place of the noisy cabs, the sudden stillness was only broken by the occasional hoot of a motor, the clanging tram-bells, or the hoarse shouts of the coachmen.

Out in the country, the plains and woods would lie covered under their thick blanket of snow. The lakes were frozen, the roads hard to find, the bitter winds blowing across the steppes cruel in their freezing fury.

Meriel Buchanan

ANOTHER GEOGRAPHICAL FACTOR WHICH HAS BEEN PERTURBING THE GERMANS—The illimitable steppes of Russia, which have hampered the German long-range gunners

Drawing by Roland Davies

Not only have the Germans found the rains a hindrance to their military efforts; they have also been commenting on the steppes of the Ukraine and Southern Russia. This region is one of immense distances—disconcerting in itself to the enemy, used to the tight-packed areas of the West; it is also a region of surprising poverty. Their commentators have been complaining that "there is nothing in the villages"! It is quite certain that big distances do separate the little towns and villages; and that unless a granary or storehouse is captured the country itself cannot support the invaders—just as the defenders intended! In the picture above, Russian gunners are firing across a typical stretch of level ground in the steppes area of the Ukraine: this may be meadowland, or partially cultivated as cornland—or just heathery, sandy steppe, slightly undulating but mostly level "black earth" country. In winter it would be impassable for heavy transport

(Continued from preceding page)

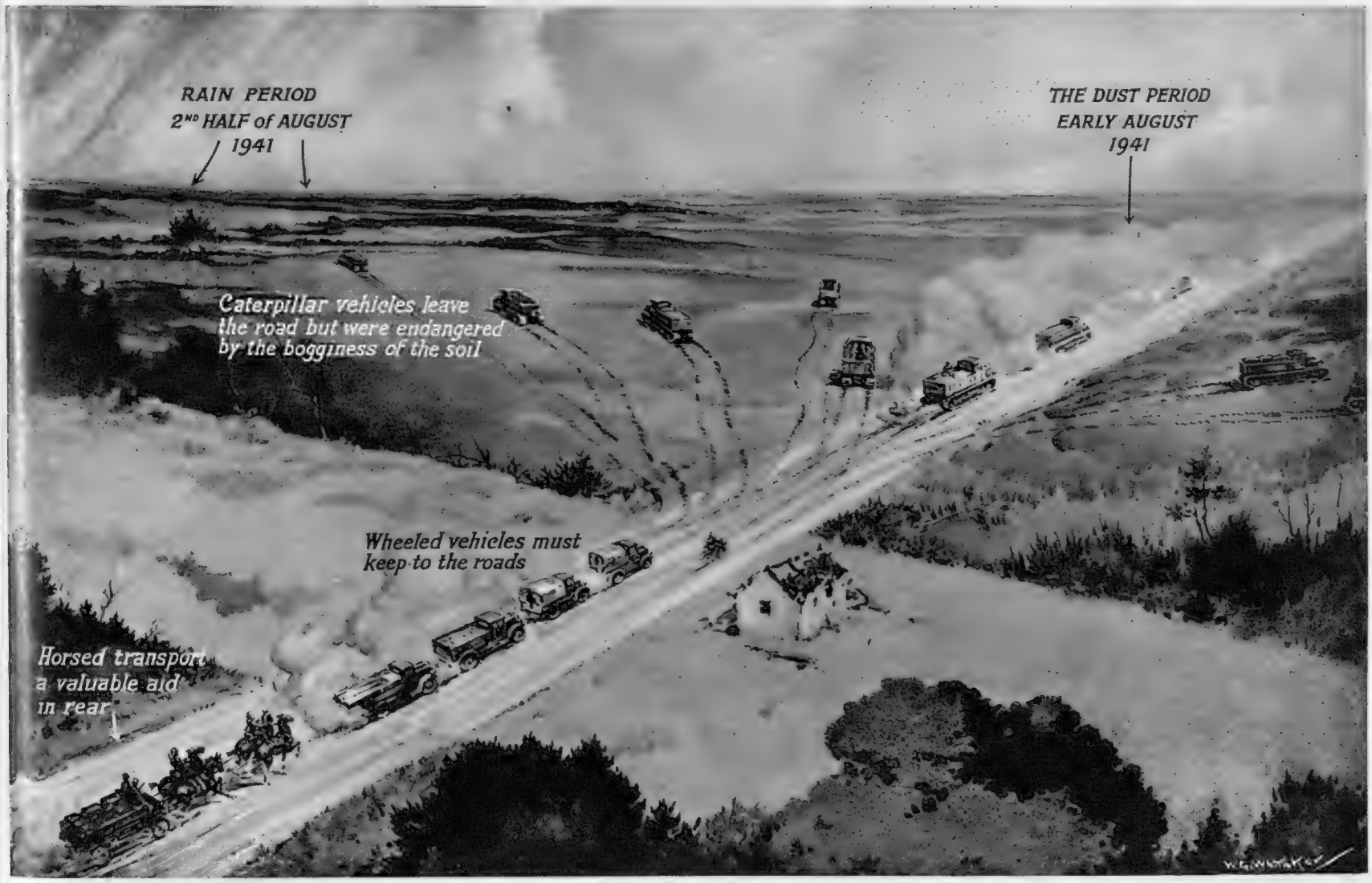
to Norway and Sweden for use in the Ukraine. These barracks have to be constructed with double walls, as the fluctuations in temperature are very serious, falling scores of degrees in a day. Feverish energy has been going on in the parts of the country now occupied by the German armies. Every kind of technical specialist has been sent forward to restore something of the destruction caused by the Russians.

Hitler is reported to have studied Napoleon's campaigns very closely. He may now remember that, after capturing Smolensk on August 17, Napoleon hesitated, wondering whether to go into winter quarters at once and wait for the spring, or to carry out his plan of advancing to Moscow. But he had determined on finishing the war by the end of September, and he hated not carrying out his schemes. So to Moscow the great army marched. It was on November 6 that the first snowstorm fell, bringing appalling disaster upon the Grand Army.

Steppes of the Ukraine *(From a description published in 1841)*

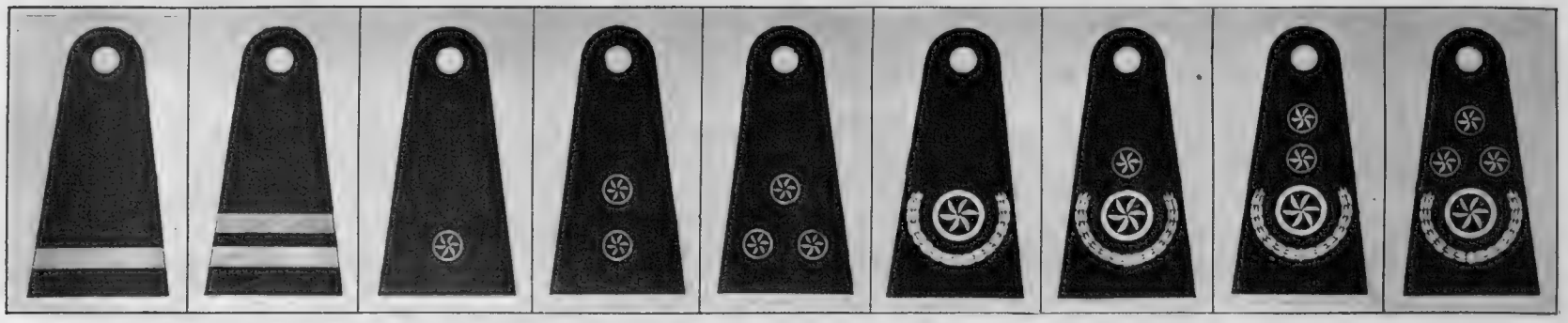
The uniformity of the landscape is well calculated to weary the traveller. These boundless grassy plains, on which blade succeeds to blade for hundreds of leagues, and on which a calf may eat his way from the base of the Carpathian Mountains, till he arrives a well-fattened ox at the foot of the great Chinese wall, afforded a never-ending theme for my imagination. The optical illusions, also, that frequently present themselves, contribute not a little to the traveller's amusement. The appearance of lakes and large masses of water presented at times so complete an illusion, we could scarcely persuade ourselves that we did not behold some wide-spreading inundation before us.

—Kohl's Travels in Southern Russia; from the *Foreign Quarterly Review*



HOW RECENT WEATHER HAS AFFECTED THE GERMAN TRANSPORT SYSTEM DURING THE ADVANCES INTO RUSSIA—*Drawing by W. G. Whitaker*

The dust period of early August brought its own troubles, choking men and vehicles in blinding clouds of the finely powdered soil. Then, in the second half of August, came the rains, turning this powder into sticky mud—a transformation witnessed every year in Russia, as weather statistics testify. The streets of big cities, even, become impassable at certain seasons! German motorised vehicles have had to stick to the main roads, only caterpillars being able to turn off to the open fields and stretches of heathland. The rains have, in fact, put a terrific strain on all mechanically-propelled vehicles; and in many cases horse-drawn transport has had to be employed by both Germans and Russians



THE BADGES OF RANK OF THE NEW NATIONAL FIRE SERVICE—from Leading Fireman up to Chief Regional Officer : Reading from the left are the following badges—Leading Fireman, Section-Leader, Company Officer, Section-Company Officer, Column Officer, Divisional Officer, Assistant Commander, Fire Force Commander, and Chief Regional Officer

The NEW NATIONAL FIRE SERVICE

The "A.F.S." Has Now Become the "N.F.S."

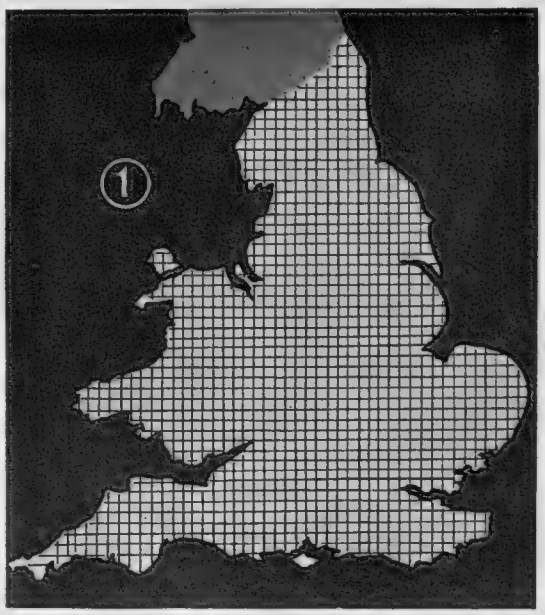
HAD they but known it, people taking the air in the neighbourhood of the Cockpit in Hyde Park on the last Tuesday in May were privileged spectators of a rehearsal for a minor revolution. For there, under the ægis of the Home Secretary, a new order of immense significance in the fire-fighting organisation of this country was tried out for the first time.

To the onlooker, it may have seemed that large numbers of units were merely taking part in some routine exercise. In reality, the occasion was a practical demonstration of the co-ordination under a single command of numerous, hitherto independent, brigades. Within three months, the greatest fire-fighting force in the world was constituted.

A fortnight earlier, Mr. Herbert Morrison had outlined a new scheme of unified control of the whole of the fire services of the country. He pointed out that, in spite of all that had been done to carry the lessons of the raids to all the principal target areas ; in spite of all the numerous improvements in the emergency fire services, the fundamental difficulty remained that the fire service was a local one. In England and Wales alone there were no fewer than 1,400 local fire authorities of varying sizes and resources. All these have now been brought under the control of the Home Secretary, with a view to re-grouping their resources into large units for purposes of direction and control, with unity of command over each force.

Obviously, the simplest way to achieve these ends was to model the force upon the pattern of the Army, and this is what has been done. In effect, the Fire Brigades and the A.F.S. have become an army, divided into large regional groups under the command of a Fire Commander, with new ranks such as Column Officers subordinate to him. Instead of a limited sway, the Fire Commander has at his disposal an immense, effective, mobile force of fire-fighters, complete with communications, and ready at a moment's notice to go anywhere and to cope with any emergency.

London Fire Brigade, as such, ceased to exist on August 18, and the 1,400 district and independent brigades throughout the country were merged into a vast National Fire Service. Its code of discipline, the method of control, and the terms of service have been completely remodelled.



THE OLD SYSTEM, of fourteen hundred separate Fire Brigades in England and Wales

THE NEW SYSTEM, showing the amalgamation of services and the new unified control

In England and Wales the Fire Services have now been concentrated into forces, each operating under a Force Commander, and several more regional forces are in process of formation. Where a huge conflagration rages, instead of a multitude of frenzied appeals for help sent out to neighbouring fire authorities, the commander has all the men and all the pumps and equipment of the whole region directly under his command. If, in spite of those great resources, he still needs further reinforcements, he can call up a neighbouring force commander, and immediately another immense fire-fighting service equal to his own is brought into action.

Moreover, reserve camps ready to go into action at a moment's notice are being established around the main target areas. Each unit is complete with sixteen pumps—four to a section—control unit, lorries, trailers, ladder units, heavy units, fast cars and motor-cyclists. The force may be called upon to go into action far away from its home base or group of stations, and it must be self-contained and mobile. The columns, therefore, are equipped with repair units, numerous other units—field kitchens, a telephone squad, and an ambulance section—even members of the Women's Auxiliary in charge of the canteen vans.

It is fitting that, under war conditions as the A.F.S. face them to-day, the firemen should rank in men's minds as soldiers. Those who live in London, or in the big cities and towns of the Provinces, may have some appreciation of the hazards to which the A.F.S. is continually exposed.

It is hard to compute what degree of human endurance is needed to go through a night and a day of the purgatory imposed by fire duty in a *blitz*, and several times it has been necessary for the men to carry on without sleep for longer than that. Sometimes particular devotion to duty is observed and registered, and many instances of heroism have been recognised and awards made, well earned. Yet, for every act of bravery recorded amongst the members of the A.F.S., there are thousands of quiet heroes whose deeds will never be known.

Before the outbreak of war, when the call first came for the A.F.S. to supplement the regular brigades, the personnel of the London Fire Brigade was rather less than 2,000 men. Now there are 28,000 firemen in London, L.F.B. and A.F.S., and throughout the country expansion in similar proportion has taken place ; until, at the present time, the force comprises about 250,000 members. With the recent increase in numbers and the knowledge gained in the hard school of experience, the efficiency of the service has increased ten-fold.

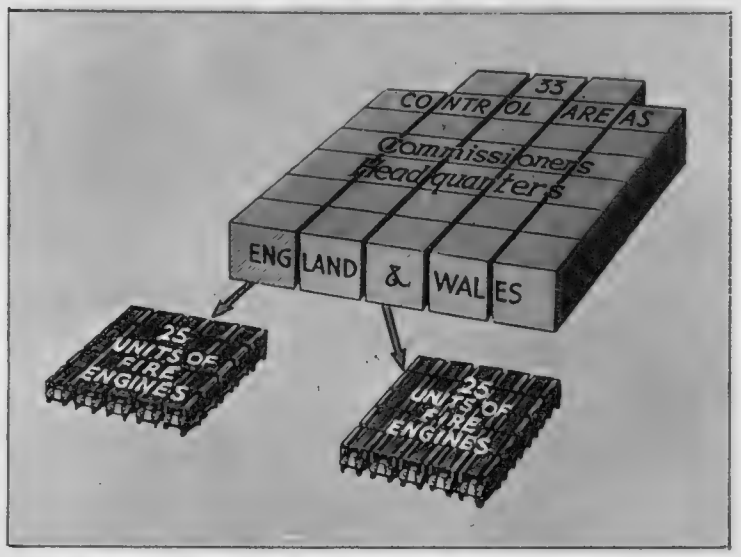
The lessons of the raids, too, when not all the vast available water supplies were tapped, have been taken to heart, and rapid progress has been made to remedy all deficiencies by a system of underground steel pipes carrying water to places hitherto poorly supplied.

London has no less than 45 miles of river bank from which an unlimited supply can be drawn. In addition to the mains, the vast reservoir of the Thames and the canals is rendered accessible all over London, and with heavy units, each capable of transporting a mile of hose and a water dam at incredible speed, the dangers of fires unchecked through lack of means to quench them have been practically eliminated.

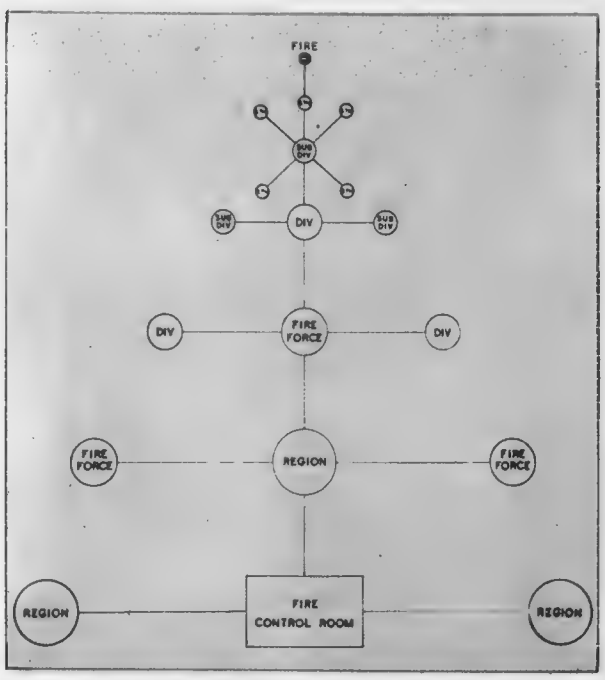
In all the industrial centres of England, Wales and Scotland, the hard-won knowledge of the London firemen has been disseminated, and the bitter experience of the fire services of much-raided Plymouth, Bristol, Liverpool and other towns is pooled.

It is upon fire-fighters in their thousands that one of the heaviest and most hazardous duties of defence has been laid. With the means now at their disposal, and with one of the widest awake Ministers of his Majesty's Government in control, the men of the A.F.S. are ready for the worst the enemy can contrive.

Trailer Jones



THE 33 NEW CONTROL AREAS IN ENGLAND AND WALES, each of which has 25 units of fire-engines at its disposal



THE PLAN OF COMMUNICATIONS FROM REGIONAL HEADQUARTERS TO A FIRE : Under the new system a Fire Force Commander will be able to obtain large reinforcements with half-a-dozen telephone calls instead of thirty to forty. The same will apply to a Regional Officer wishing to reinforce a Fire Force Commander

WITH BALMORAL CASTLE AS A BACKGROUND: The King inspecting a Canadian Forestry Corps during his recent stay in Scotland. His Majesty is wearing the uniform of the Cameron Highlanders

The King and Queen, it is announced, have just concluded a stay in Scotland, together with their two daughters, Princess Elizabeth and Princess Margaret Rose. On the National Day of Prayer, the Royal party attended the service at Crathie Church, near the castle, where the picture reproduced below was taken. The other two pictures on this page were taken during an inspection by the King of a Canadian Forestry Corps now in the Highlands. The inspection was held in the grounds of the castle, and afterwards the King took the salute at the march past. The two little Princesses were present and watched the proceedings with great interest

The KING and QUEEN in the HIGHLANDS

THE KING AND QUEEN AND THE TWO PRINCESSES AT THE PORCH OF CRATHIE CHURCH, NEAR BALMORAL, where they attended service on the National Day of Prayer

PRINCESS ELIZABETH AND PRINCESS MARGARET ROSE watching the King carry out his inspection of the Canadian troops at Balmoral

The AFTERMATH of the "BLITZ"

Pulling Down the Damaged Buildings of London

Described by CHARLES GRAVES

(The first of a new series of weekly articles)

A COMMON SIGHT DURING RECENT WEEKS IN LONDON : Demolition workers at the top of a fragment of Wallis's Stores in Holborn, which was badly "blitzed" in one of the last heavy raids on London

THE more London gets knocked about, the more inordinately proud Londoners become of their city. The outsider may be sympathetic about London; he may learn all the statistics and see all the sights; he may be impressed by the amount of damage that has been done or he may be surprised that so much has been left undamaged; but unless his own home town has been bombed he cannot really understand air raids any more than an Englishman can understand the meaning of civil war as it is known to a Southerner or a Spaniard.

We who live here are bound to notice the gaps. Every time we go through Grosvenor Square, Berkeley Square and St. James's Square memories of ball-rooms with little gilt chairs around the walls come back at us like gay ghosts. Unless you have seen it for yourself you cannot know the curious effect of seeing rooms where you have dined and played bridge with their window-frames torn out, their walls shattered and their floors blown away.

The women who stand behind the counters of our famous big stores are as familiar to the London shopper as any of their friends. Commissionaires and waiters are known to thousands of people who have enjoyed London's night life. Every time we walk down Oxford Street or pass the sites of "blitzed" hotels and restaurants, the faces of these people who have worked there pop up in our minds, and we hope that that particular night did not put them out of a job permanently.

The appearance that London presents now that the demolition squads have been on the job for some weeks is frequently a matter of lively discussion. Some of us think that a "blitzed" building which has been cleaned out by the demolition squads looks more naked and noticeable than one which is still a pile of rubble as left by the *Luftwaffe*. Certainly the extent of the damage is much more noticeable when it has been cleared up than it was at the beginning. For months after the "blitz" started in earnest we were accustomed to seeing bath-tubs hanging by a thread for three or four floors above the street, pathetic little pictures, bits of stairway and shambles of bricks. Now that all this has been cleared away the most noticeable thing about the "blitzed" buildings is the curious, faded, distempered patchwork effect of the walls left standing. One never notices wallpaper, and very seldom panelling. The patchwork always appears to be distemper.

At first it was the Pioneers who were employed to dig away the rubble and straighten out the situation. The purpose of this, however, was to save life as well as to clean things up and salvage what could be saved. It may be noted that compulsory insurance enables the Government to claim through the L.C.C. (in the case of London) the right to tidy up and use to the best advantage all the steel, concrete, bricks and other materials of which buildings are made, always with the exception of the furniture and personal property of the householder.

What happens is this. The local surveyor telephones or sends written instructions to one of several contractors, and tells them to start work on some "blitzed" site. There is no time to send out tenders. Certain firms agree to be on the employment roll of the L.C.C. for this type of work. Periodically, they send in accounts which are duly checked at County Hall. But all the time there is a surveyor on the job to see that the work is being carried out as economically and expeditiously as possible. Payment by the L.C.C. is based on wages, plant hire and lorry hire. Sometimes these firms, which specialise in demolition, are told to pull down the dangerous structures still extant after the "blitz." Sometimes they are told not only to do this, but also to tackle the site itself and separate all the mixed materials, such as steel girders, hard core (broken bricks) and other debris.

A good example of a demolition job is provided by the sight of Druce's, in Baker Street. It took five week-ends to pull down the dangerous walls. Every Sunday morning for those five weeks it was arranged that traffic should be diverted for a few hours in the morning to enable the dangerous structure overlooking Baker Street itself to be pulled down without risk to passers-by. This meant, incidentally, that double money had to be paid to the demolition squads, but it was unavoidable.

The difference between demolition in wartime and peacetime is that until 1940 the demolition

THE LATEST OF ITS TYPE—assisting in demolishing "blitzed" areas : This is an American 20-ton Lorian mobile motor-crane. It runs on ten wheels and can remove an ornamental pillar weighing a ton and a half (as above) as easily as if it were a cigarette

HOW HIGH EXPLOSIVES AND BLAST LEFT A FAMOUS LONDON THEATRE : A picture of the Shaftesbury Theatre as it is to-day, after demolition workers had removed a good deal of the debris

THE CHURCH OF ST. NICHOLAS COLE ABBEY IN QUEEN VICTORIA STREET: This City thoroughfare suffered considerably in the last raids on London. Demolition workers had to remove many of the unsafe walls at this spot

A GENERAL VIEW OF THE SITE OF DRUCE'S, THE FAMOUS STORE IN BAKER STREET: At this spot it took five week-ends to pull down the dangerous walls. The site to-day "looks more like Ypres in 1918 than anything else," says Mr. Graves

squads conscientiously took out the interior fittings from a condemned building, and then, having done so, started to take the building down from the top, removing the roof and reducing the structure, stage by stage, to the ground floor. "Blitzed" buildings provide a different problem. The materials are already partly down and mixed up, and therefore have to be separated. The second point is that "blitzed" buildings may contain many weaknesses which would not occur normally. These are caused by blast, which often produces freak effects. Brickwork may be fractured on the inside and yet show no signs of it on the exterior. Supporting beams may be broken, but not visibly so. And if they are not carefully handled they may, when removed forcibly, bring down a whole chunk of building unintentionally. When there has been a fire caused by incendiaries, the cast-iron stanchions are sometimes fractured without showing any signs of it. And fire frequently takes the temper out of steel, making it weaker than appearances would suggest. Indeed, it is often necessary to shore up a building, floor by floor, before pulling it down.

The L.C.C. Fire Brigade has sometimes to be employed to enable men to reach the top of a dangerous high wall and then attach ropes to it in order to pull it down. For it frequently happens that a wall cannot stand even the pressure of a ladder against it, and it is therefore necessary to use an extending ladder. On the occasions when buildings have to be pulled down there is never time to work out the stresses and strains. The calculations, if any, are based on experience and intuition on the part of the foremen, who have become uncannily accurate in their diagnosis of how a building will fall.

The primary object is to cause the wall or building to fall in the correct direction and in the smallest possible area. It has happened that a wall 80 ft. high has covered less than 10 ft. when it has been collapsed instead of the 200 or 300 ft. which it would have covered if pulled down amateurishly. The usual procedure is to punch a hole through the centre of the condemned wall, pass the hawser through the hole, tie it to a rolled steel joist, thread the latter through the hole, attach the hawser to a 25-h.p. lorry and then drive the latter in the opposite direction. Something is bound to happen. Occasionally, a crane with a winding rope on a drum is used for the same purpose. But it is seldom that explosives are used. After the Second Fire of London the Sappers used explosives in the Paternoster Row and Ludgate Circus area. But it was decided ultimately that this was a trifle dangerous.

To revert to the freak effects of blast: a tremendous amount of twisted steelwork is visible on most bombed sites. Steel beams are found to be twisted inversely on themselves. The top and bottom flange of a steel girder may be complete and yet a hole may have been blown right through the web (the central straight piece). These steel girders are cut up on the spot by acetylene flares.

If bodies are found in the debris, these are promptly notified to the rescue services, and the demolition squads are moved to another section of the site while the corpses are removed.

The greatest care has to be taken about party walls. For it often happens that the house next to one which has been "blitzed" is undamaged, but must be protected while the "blitzed" building is taken down. This is usually done by hand—with hammer and chisel.

Druce's covers an area of 160,000 sq. ft., and looks more like Ypres in 1918 than anything else. Alleyways have been made round the rubble. The various types of debris have been separated into large piles. The basements have been cleared out. Elsewhere the huge building has been cleared as far as the foundations. All the drains, as elsewhere, have had to be examined and sealed off to prevent the entry of vermin, from sewer rats downwards. As I write, the demolition work is still in progress, and so far no real valuables have been discovered. But this may occur any moment now. On other sites gold watches, bearer bonds (to the amount of £100,000 in a single instance) have been found, together with silver plate, jewellery, insurance policies, bank-books and various securities. All valuables found, including furniture, are handed over to the local borough council and put in storage until the owners have been traced. Baths, lavatory seats and other sanitary fittings are handed over to the A.R.P. and used in their own shelters. All eatables, which can include any amount of tinned stuff, goes to the Ministry of Food. Complete bricks are passed over to the borough councils and the Government contractors to be used for new shelters, protective works and anything else which may assist in the successful prosecution of the war. All papers are collected and put on one side, and if you ever see a fire burning on one of these bombed sites you can be sure that it is only charred wood. All other wood goes to first-aid repair work for bombed houses, more of which can be repaired than cannot. Army huts also benefit from timber made available in this way. The hard core is used for aerodrome runways, balloon sites and factory works. The Ministry of Supply takes all the iron and steel for tanks and other munitions.

The money that this salvage brings is set off against the cost of demolition, and goes to the Government as part compensation for the money which it will ultimately have to pay out in insurance when the war is over. It is pleasant to realise that the Salvage Department of the L.C.C. is so enterprising and economically run.

FASTENING A STEEL HAWSER round a dangerous part of a wall at Druce's

HOW THE DAMAGED WALL IS BROUGHT DOWN, by means of a steel hawser which is hauled taut by a motor lorry away on the right

The World of Books—By Vernon Fane

DONA AND THE FRENCH BUCCANEER

Daphne du Maurier's Charming Pirate; Love, Luxury and Pre-war Europe; Dr. Rauschning's "Conservative Revolution"

THERE may be an old farm building near a backwater of the Helford River on the site of what was a proud house in Restoration days. Behind the walls of that house a beautiful lady once watched and listened, "her hands playing a little nameless melody upon the sill." The quotation is from the opening of Miss Daphne du Maurier's new novel, FRENCHMAN'S CREEK (Gollancz. 8s.). Later, when the story really swings into action, the beautiful Dona, who was Lady St. Columb, was indeed watching with a fast-beating heart, and "her fingers beat a little nameless tune upon the sill."

This was all because she had run away from the artificial excitements of seventeenth-century London and from a doltish and uxorious husband, and brought her two children and their nurse to Navron House, which she had never before visited. She finds it in charge of a strange manservant with a curious accent, which she first took to be Cornish. She also finds the neighbourhood much disturbed by the maraudings of a French pirate, and it was not long before she was able to identify this sporadic visitor with the ship with the strange raking crimson masts she had seen making for the Helford River.

Moreover, Dona had discovered by her bedside a volume of Ronsard and a jar of tobacco. The button-mouthed manservant with the funny accent, the tobacco, the volume of poems, the ship with the raking masts and a conveniently deep creek close by all added up to a presage of an adventure with a pirate, and a very romantic pirate at that.

How the fascinating M. Jean-Benoit Aubéry managed to get his dashing-looking *La Mouette* into the Helford River to its hiding-place without being observed by those whose only wish would be to hang him on the nearest tree, is not explained.

He was, of course, as handsome and charming as he was gallant, and it was perfectly reasonable that he should fall for the beautiful Dona as quickly as she fell for him. All that remained now was for Dona to dress herself up as a cabin boy and nip off with him to take part in a raid on Fowey Haven and to steal a prize from under the noses and the guns of the local garrison.

Dona had dressed up in man's clothes before, when she slipped out one night in Sir Harry's breeches to ride barebacked through the streets of London at midnight. She had also given further examples of her independence by brazenly going out to take supper in London's taverns with the ladies of the town.

In spite of these escapades her virtue was not in question and she really adored her small children. She managed to get away on this piratical escapade with the connivance of the button-mouthed William by feigning a sickness which ostensibly kept her confined to her room.

Unfortunately, she timed her return to Navron House too late to escape the consequences of the sudden arrival of Sir Harry and his bosom friend, Rockingham, and there was nothing for it but that the gallant pirate lover should take every possible risk and raid the house-party, in the course of which Rockingham gets bumped off by no less a person than the fair Dona herself.

Moreover, the Frenchman is caught and is due to be hanged. That would not do, of course, so he is rescued by Dona and lives to sail away to the more indigenous coast of Brittany. So the beautiful Lady St. Columb loved, and in loving, lost. Yet did she lose? The question is almost the perfect Hollywood climax, accompanied, as we would hope, by a suitable reiteration of the picture's musical love motif.

Miss Daphne du Maurier's piece of hokum has a period setting, but with not too much insistence upon historical detail. Her hero is a cultured, charming Dick Turpin among pirates, and her heroine, for all her waywardness and seeming lapses from taste and morals, is as full of character and virtue as any good woman can be expected to be. Miss du Maurier has a kind of dexterity with language which is more remarkable because it appears at times to touch naïveté. There can be no doubt that the mixture is effective, and there can be less doubt but that the library and the cinema publics will lift this story immediately into the ranks of the best-seller.

The wrapper of Miss Mary Lutyens' new novel, A PATH OF GOLD (Michael Joseph. 9s. 6d.), declares that the mother of the heroine, Louie Errol, was no better than she should have been. Marianne Errol (née Annie Vogel) had her own ideas about getting on in life, and the goal for which she strove was that of comfort and luxury. Her daughter, Louie, was an illegitimate child, but that did not prevent Marianne hooking a wealthy Dutch Baron at Monte Carlo.

Louie, although she had none of the instincts of her beautiful and thoroughly selfish mother, met a man on a balcony on a warm summer's night in Geneva, and fell in love with him. He fell for her, too. It was one of those irresistible impulses which novelists love to describe.

But he was a married man with a wife, and some children whom he also loved, and it was he who took the decision that the impulse should not be consummated. In the years that followed, Louie cut away from her family and her friends and went to Paris and by some process which is not properly explained, became a star of cabaret and of musical shows. She was, not unnaturally, very attractive to men, and one of them, Ben, a highly desirable *parti*, did his best to marry her. Unfortunately, at this moment she encounters her Genevan lover once more, who this time really becomes her lover, insists that she gives up her stage career, and insists, at the same time, in keeping the affair from his family and his friends.

Louie shatters Ben's dream, and in due course her lover shatters hers, so that when she and Ben meet again, this time in New York, they are very much battered by their experiences. She is on the point of patching it up with Ben, having convinced herself (not, possibly, the reader) that she really was in love with Ben, and wanted to marry him.

Then the war breaks out and Ben goes to France and gets killed. Louie in the meantime is about to have a baby, and Ben's decision to marry her comes, of course, too late.

There is an awful lot of pre-war glamour and luxury living in and around Europe and in English country houses in this book, and the ladies in the cast are, of course, no better than they should be. Personally I see very little difference between the heroine and the mother who is so roundly condemned upon the wrapper.

Dr. Hermann Rauschning continues those doctrinal philosophisings which began in *Germany's Revolution of Destruction*, and were continued in *The Beast from the Abyss*, in a book which he calls MAKE AND BREAK WITH THE NAZIS (Secker and Warburg. 8s. 6d.). The book takes the form of letters written in a personal strain to a hypothetical English statesman, and its sub-title is "Letters on a Conservative Revolution." Mostly Dr. Rauschning goes over a good deal of the historical ground and of the examination of Nazi motives and the direction of Nazi thought which he has done in previous books. He reveals once more something of what he learned in his early associations with Hitler, and exposes again the falsity of the Nazi case and its declared determination to destroy for ever the basis of a liberal industrialism. Dr. Rauschning points out that much of this book was written before Russia's entry into the war, and he declares that "the remarks in these letters about Bolshevism and Stalin are not an interpretation after the event, but a restatement of the conviction expressed long ago that Russia has entered a new phase." This book adds little to what we have already learned from this distinguished German political philosopher, but there is a pointer to some further interpretation of his creed in the light of what is happening on the Eastern Front to-day.

Just published in Messrs. Faber and Faber's excellent series of Sesame books (3s. 6d. net) are two new volumes, THE PICNIC AND OTHER STORIES, by William de la Mare, and AS THE SUN SHINES, by Henry Williamson. Both volumes are excellently selected, and both are valuable additions to the series.

TWO BATTERED MONUMENTS IN SYRIA: Their original form discovered: On the left are the "Meghazils" of Anrit, near Mantar, as they were seen by Henry Maundrell in 1697; and on the right as they appear to-day

On the road from Aleppo to Jerusalem, a famous highway traversed by many a traveller from the Middle Ages down to the present day, there lie two ancient towers. They have been seen and their appearance chronicled by several modern travellers, but their origin and original appearance have remained somewhat of a mystery. In the view on the right above, they are shown as a couple of weather-beaten monuments, split and riven by the action of time and the weather until it is difficult to say, from looking at their outward form, what was their original appearance. The one on the right has a base, supported or buttressed by four half-obliterated lions. Two bands of ornament, which might be described as collars of dental work, evidently once surrounded the megalith which rises above the base. The second monument, the one on the left, was evidently of simpler form; it had a rectangular base upon which rose a cylindrical mass from which weeds sprouted wherever they could obtain a foothold. Some light on their original shape and purpose has just come to our hands. When Mr. Henry Maundrell, chaplain to a factory at Aleppo, decided to journey from that city to Jerusalem, he started off in the company of several merchants who were bound for the Holy City. On his way south he, on March 8, 1697, encountered the towers, and gives in his book a cut showing their appearance as he saw them. They were evidently in a far less damaged condition than the modern photograph shows them now to be. The caps of both were evidently quite visible.

In his narrative he describes arriving in the vicinity of the two towers, which were some 30 ft. high and were evidently sepulchral in design, for his party explored the chambers or cells beneath the monuments. All the chambers were empty, but the explorers seemed to have no doubt as to the purpose of the monuments. The two towers were in a far better state of preservation than at present, although the four lions had already weathered considerably; the head of the column is shown to be rounded, and the summit of the other, now almost entirely worn away, is shown to have been conical—a form not unknown to the churches and memorial towers of Northern Iraq and Persia

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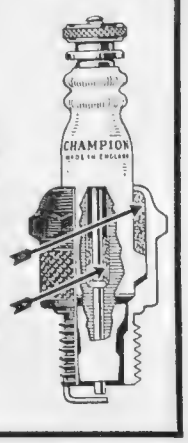

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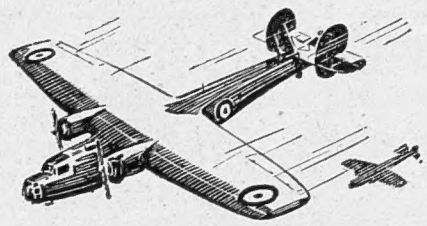

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IN QUEST OF GOOD HOTELS
BY ASHLEY COURTENAY

Owing to rationing of paper and the demand on our editorial pages, it is necessary to omit from time to time Mr. Ashley Courtenay's usual weekly article. We would, however, emphasise that his services are always available for advising SPHERE *readers by post of hotels, both large and small, known to him personally. Letters, accompanied by a stamped, addressed envelope for reply, should be addressed to him c/o The Editor,* THE SPHERE, *Commonwealth House, 1, New Oxford Street, London, W.C.1. Personal and telephone inquiries, however, cannot be accepted.*

THIS time last year hotel accommodation was at a premium. In the general scramble that followed the first *Blitz* period there were many misfits, and those who patronised the hotel-keeper by announcing their intention of staying for the duration have long since departed.

A proportion of residents is all to the good in an hotel, but there comes a time when all should make a break, even if it is but a temporary one, for without change even the best of us must stagnate.

Fortunately, there is at the moment much more fluidity in the hotel world. Leave is not a seasonable affair. It comes in due season, and blessed indeed is its coming, be it in January or in June. But for all that, winter residence naturally forms the bulk of inquiries; and in making choice of winter quarters, I should always elect to settle at an hotel where there would be a constant flow of new faces.

Hawkstone Park Hotel, at Weston-under-Redcastle, about 11 miles north of Shrewsbury, is such an hotel. It is large enough to be able to escape from one's neighbours. There is an 18-hole golf course adjoining the hotel, which always means an influx of new faces, and that the hotel must be well run is evidenced by the fact that a friend of mine, who is a director of quite one of the best-run hotels in the North, has been to Hawkstone four times this year already, though his other interest lies much nearer him. It is not an hotel for frail or fussy people; but it should suit admirably the retired who like their golf, their bridge, a bit of rough shooting, some fishing and other normal country pursuits.

There are always some people who can make their own life and deliberately seek places off the beaten track, and whilst Hawkstone Park is one such place, Fuidge Manor Hotel and Country Club is another. Its nearest village is Spreyton, but the best known point to those who are familiar with the Exeter-Okehampton road is Whiddon Down, about 14 miles from Exeter and 9 from Okehampton.

Fuidge is more of the country-house life than hotel. The country-lover quickly fits in. The hankerer after town life as quickly flits out. There is no betwixt and between about Fuidge Manor. Days are not long enough for those who can busy themselves, and those who are a bit of a gourmet *will* appreciate the way in which rationed meals at Fuidge are so often a succession of pleasant surprises. At the time of writing they have two single and two double rooms only available for the winter.

Winter accommodation near London is never so easily come by, especially for those who desire to be within daily reach of town. Though the following have been consistently full during the last year, there is the possibility of limited accommodation now. Harley-ford Manor, near Marlow; a first-class place for those who have not to catch a set train each day, though with a car to Marlow, two miles away, it is easily managed. Grove Hall Hotel, Twyford. Here you can catch your morning train with consistent regularity, always provided you do not oversleep. Even then there are so many trains that it is not a serious matter, and the hotel is one minute's walk, not run, from the station.

Red House Hotel, Leatherhead. Similar to Grove Hall in that the station is just around the corner. An excellent choice for those who find Waterloo a convenient station. Waldronhyrst Hotel, near East Croydon Station. Here's a case of *rus in urbe*. A country house encompassed by large grounds and screening trees. Yet in a few minutes there is the electric line to Victoria or London Bridge. No need to worry about catching the train. There is always one just coming in, if the last one has just left.

Bury Green House, Cheshunt, Herts. Living here myself, I have discovered a choice of routes. Train to Liverpool Street from Waltham Cross or Cheshunt. Twenty minutes by fast, half an hour by slow. Green Line every twenty minutes from Cavendish Square to Old Pond, Cheshunt. Tube to Manor House and then by bus. And in about an hour one is in the heart of the country!

ANSWERS TO CORRESPONDENTS

S. T., Chelsea.—There is no need to bemoan a reduced petrol ration. There are many places which can be reached by Green Line 'bus, or by train. For a week-end break or even a day's run go to the Old Felbridge Hotel on the outskirts of East Grinstead. But book well ahead. They are always full, and especially at week-ends. It was quite a pleasure to call in there and have lunch the other day. The service, considering it was wartime, was amazingly slick. We were met at the door, told the geography of the house, were not kept waiting on entering the dining-room, the waitress was cheerful and helpful, and an excellent lunch was a 100 per cent. better for our being made to feel that we were really welcome.

P. A., Winchester.—Thank you for putting me on to three good things: The Normanmede at Winchester for the night, the Swan at Bursledon on the Hamble for the freshest of lobsters I have had for many a long day, and for telling me of the Bugle at Hamble itself, where there is always a cheery atmosphere. I also noted down at the Bugle for some future occasion an inviting snack bar.

A. K., Pulborough.—When you go to Colyton in Devon you will find the most convenient place to stay at is Seaton, and there you need not look beyond the Beach Hotel.

S. L., Catsfield.—I gather you want to be more in Central Devon, and in that case I should choose Fuidge Manor Hotel, near Spreyton. There is a rumour that the hotel is being closed. This is not the case. It is an hotel admirably suited for permanent residence, and several of the rooms seem more sitting-rooms than bedrooms. Fuidge Manor lies back about two miles from the Exeter-Okehampton road. At Spreyton is the forge where Uncle Tom Cobley's mare was often shod, whilst in the churchyard is a gravestone to Thomas Cobley, though it is not certain whether he was the Tom Cobley of the song.

G. H., Bletchley.—Between Oxford and Bournemouth I myself would try to get in one of the following: The Ailesbury Arms at Marlborough, or a small private hotel, Ivy House. But, to be more away from things, I should make for the Crown at Everleigh, about five miles from Upavon. Alternatively, you would be very comfortable at Coombe House Hotel, Shaftesbury.

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The Bisley School Branch of this Society has recently received a warm letter of congratulation from a Brigadier-General for the splendid way in which their School Band performed for the Frimley and Camberley Cadet Corps, when His Majesty King Peter of Yugoslavia honoured the Corps by going down to inspect and give away the prizes. The letter continues: "On all sides I heard the very highest tributes paid to the Band's musical skill, and His Majesty paid a particular compliment to the way in which they played the Yugoslav National Anthem. The way they played it was a veritable triumph." This speaks for itself of the way in which those boys with musical leanings are trained. Does not this Society deserve all support? Please help. Address: 164, Shaftesbury Avenue, London, W.C.2.

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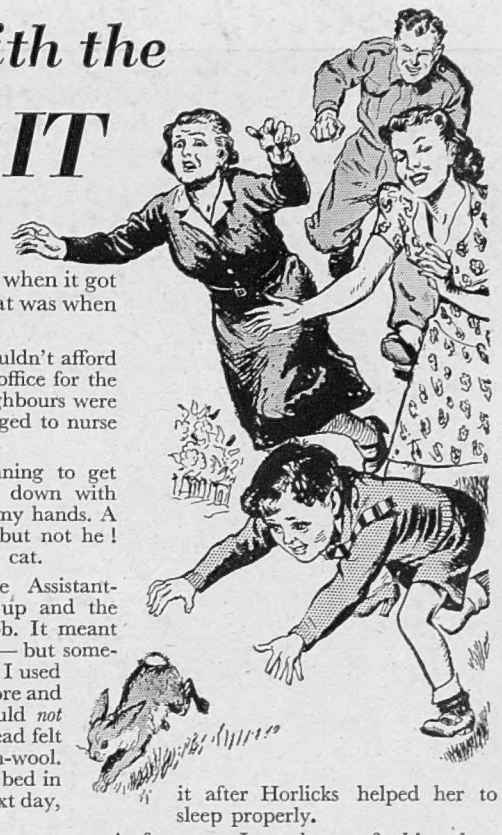

THE rabbit was a new pet of my young brother's. He was showing it to the family when it got away. We all chased it — and that was when mother fell and broke her leg.

It was a four months' job! We couldn't afford a nurse, so I stayed away from the office for the first fortnight and after that the neighbours were wonderful. With their help, I managed to nurse mother and run the house all right.

Then, just as mother was beginning to get better, that brother of mine went down with whooping cough and I had *him* on my hands. A normal child is subdued by illness but not he! Nursing *him* was like taming a wild cat.

Finally, to cap everything, the Assistant-Manager at the office was called up and the Chief asked me to take over his job. It meant more pay and of course I was glad — but somehow I didn't seem equal to the work. I used to take work home to do but it got more and more difficult to concentrate. I could *not* make the effort. Half the time my head felt as though it was stuffed with cotton-wool. Sometimes I'd give it up and go to bed in the hope that I'd feel different the next day, but I'd get up just as tired as ever.

At last mother persuaded me to speak to doctor about it. He knew I'd had a hard time, and I expected him to say I just needed a holiday. But he didn't. He said a person of my age ought to recover from any amount of hard work after a couple of good nights' sleep.

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I started taking Horlicks that very night. Of course my young brother clamoured for it, so I gave the whole family a cupful each, and we've all had it ever since. Only then did I discover that poor mother had been lying awake night after night. She admitted it after Horlicks helped her to sleep properly.

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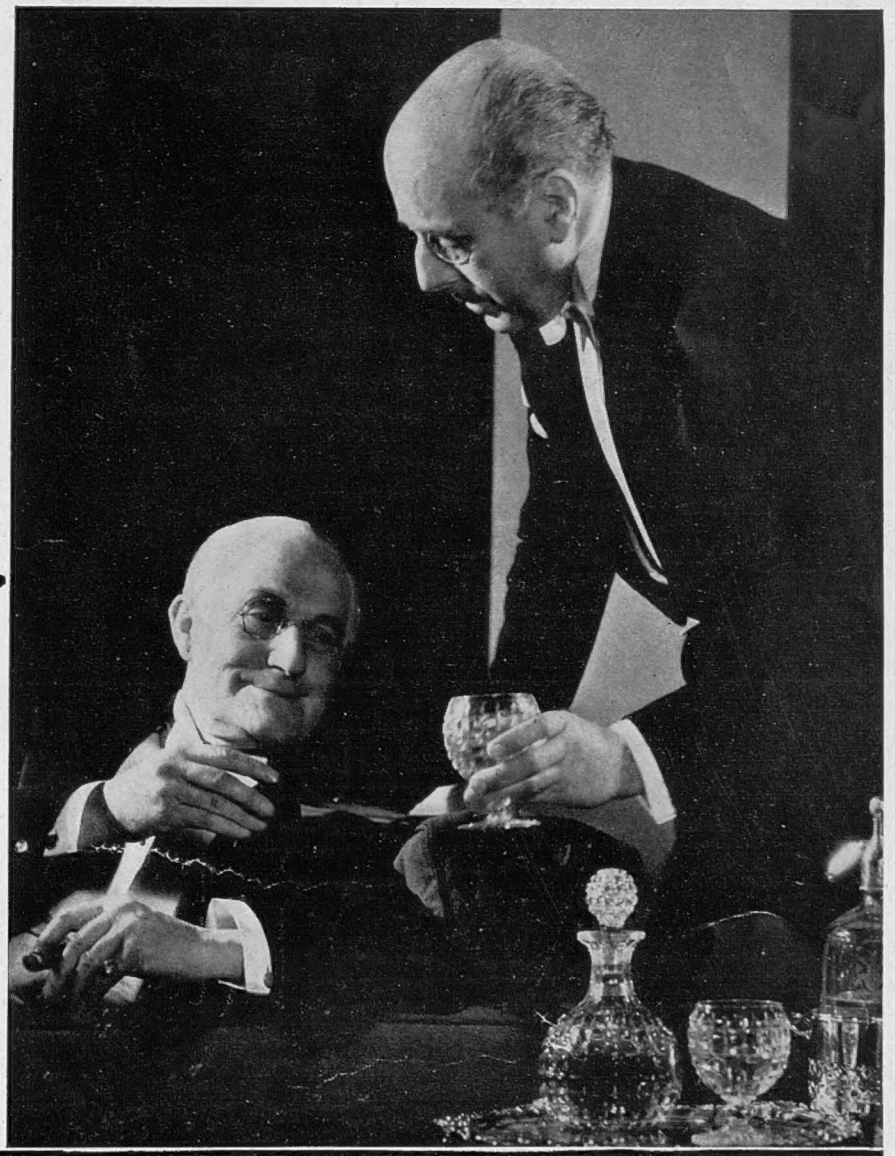

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